

1 IN THE UNITED STATES DISTRICT COURT
2 FOR THE DISTRICT OF SOUTH CAROLINA
CHARLESTON DIVISION

3 Suzanne Q. Little, individually)
4 and as Personal Representative of)
5 the Estate of Samuel Martin Little,)
6 Deceased,)
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25 REPORTED BY: LORI A. BOEDING

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1 Videographic deposition of ARTHUR W. BURKE,
2 JR., M.D. taken by and before Lori A. Boeding,
3 Notary Public in and for the Commonwealth of
4 Virginia at large, pursuant to Rule 30 of the
5 Federal Rules of Civil Procedure, and by notice to
6 take depositions; commencing at 9:11 a.m.,
7 April 14, 2000, at the Crowne Plaza Hotel, 555
8 East Canal Street, Richmond, Virginia.

6

10

11 Appearances:

12

NESS, MOTLEY, LOADHOLT, RICHARDSON & POOLE

13

28 Bridgeside Boulevard

14

P.O. Box 1792

13

Mt. Pleasant,

16

BY: FREDERICK C. BAKER, ESQ.
and
ALEXANDRA M. WAGNER, ESQ.,
Counsel for the Plaintiff

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1 Appearances continued:

2

3 CHADBOURNE & PARKE, LLP

4 30 Rockefeller Plaza

5 New York, NY 10112

6 (212) 408-5100

7 BY: THOMAS E. RILEY, ESQ.

8 - and -

9 KING & SPALDING

10 191 Peachtree Street

11 Atlanta, GA 30303-1763

12 (404) 572-3514

13 BY: W. RANDALL BASSETT, ESQ.,

14 Counsel for the Defendant

15

16

17

18 Also present:

19 Bill Ware, Videographer

20

21

22

23

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1 I N D E X

2 DEPONENT

3 ARTHUR W. BURKE, JR., M.D.
4

5	Examination By:	Page
6	Direct - Mr. Baker	5
7	Cross - Mr. Riley	165
8	Redirect - Mr. Baker	172

9

10

11

12 E X H I B I T S

13	Burke Exhibit No.	Description	Page
14	1	5-page Document entitled "The Importance of Biological Research"	74
15	2	Copy of advertisement entitled "Why we're dropping the New York Times"	133

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1 (The deposition in this matter began at
2 9:11 a.m.)

4 THE VIDEOGRAPHER: This is the
5 deposition of Dr. Arthur W. Burke, Jr. taken
6 on behalf of the plaintiff. My name is
7 Bill Ware of Cavalier Reporting & Videography,
8 677 Berkmar Circle, Charlottesville, Virginia.
9 The court reporter is Lori Boeding.

10 Would counsel please identify
11 themselves for the record.

12 MR. BAKER: My name is Fred Baker,
13 counsel for the plaintiff.

14 MS. WAGNER: Alex Wagner, also counsel
15 for the plaintiff.

16 MR. RILEY: Tom Riley representing
17 Brown & Williamson Tobacco Corporation.

18 MR. BASSETT: And Randy Bassett
19 representing Brown & Williamson Tobacco
20 Corporation.

21 THE VIDEOGRAPHER: Thank you. The date
22 is April the 14th, year 2000. The time is
23 9:09 a.m. Would the reporter please swear in
24 the witness.

25

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1 ARTHUR W. BURKE, JR., M.D.,
2 was sworn and testified as follows:
3

4 DIRECT EXAMINATION

5 BY MR. BAKER:

6 Q Good morning, Dr. Burke.

7 A Good morning.

8 Q My name is Fred Baker, and as you just
9 heard, I'm counsel for the plaintiff in the
10 Little v. Brown & Williamson Tobacco Corporation
11 case. I'll be taking your deposition today.

12 If you feel it's necessary to ask for
13 clarifications, definitions or explanations of any
14 words, questions or documents presented to you,
15 please ask me, and I'll be happy to try to clarify
16 those for you. Do you understand that?

17 A I do.

18 Q In addition, Dr. Burke, if there's any
19 point in time you want to take a break, just let
20 me know, we'll wrap up the question on the table
21 and we can take a break.

22 A Thank you.

23 Q If you would please state your name and
24 address for the record.

25 A Arthur W. Burke, Jr. I reside at [DELETED]

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1 [DELETED] suburb
2 of [DELETED]

3 Q Dr. Burke, on April 3rd, I received a
4 letter from Mr. Riley saying that you did not have
5 any of the documents in your possession that we
6 requested on Schedule A; is that correct?

7 A That is correct.

8 Q Prior to this deposition, did you have
9 any meetings or discussions about it?

10 A No.

11 Q Did you review any materials or
12 documents in connection with it?

13 A I have not seen any documents.

14 Q And you're appearing here without a
15 lawyer: is that correct?

16 A Yes.

17 Q Have you ever been deposed before?

18 A Yes

19 Q In what case was that or cases?

20 A In a civil action between two
21 physicians

22 Q. It was not tobacco related?

24 Q And have you ever testified before in
25 trials.

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1 A A nonjury trial in the same case.

2 Q I'm going to ask you a few background
3 questions. First of all, could you give me a
4 brief history in chronological order of your
5 education and professional life since your
6 graduation from high school?

7 A I attended the University of Virginia
8 from 1944 to 1949. I accomplished my bachelor's
9 degree in 1947, I believe it was. Took a master's
10 degree -- am I speaking loudly enough? Master's
11 degree in 1948/'49. I was briefly at Harvard
12 University doing research.

13 From there, I went to Oak Ridge,
14 Tennessee, the Oak Ridge National Laboratory, the
15 Biology Division as research assistant. In 1952 I
16 entered St. Louis University doctorate program in
17 the field of biophysics. I left St. Louis
18 University in 1956 and entered the Medical College
19 of Virginia as a beginning freshman in the College
20 of Medicine. In 1957 my thesis was finally
21 accepted and received a Ph.D. in biophysics from
22 St. Louis University.

23 In 1960, completed medical studies and
24 '60/'61 was an intern in the Department of
25 Medicine, Medical College of Virginia. I went

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1 from the internship to Rhode Island Hospital where
2 I was a research associate in the Oncology
3 Department, or the Cancer Research Department, of
4 Rhode Island Hospital.

5 I left Rhode Island Hospital in that
6 same capacity in 1964 and joined the Medical
7 College of Virginia as an assistant professor of
8 pharmacology. At that time I was also afforded a
9 consultantship with American Tobacco Company
10 Research Department.

11 In about 1965, I guess it was somewhere
12 a year plus after starting at MCV, the management
13 of the Research Department of American Tobacco
14 indicated that they would like for me to come
15 in-house, remain a consultant but be directly
16 employed by the Medical College.

17 I left American Tobacco in 1971. In
18 1972 entered the field of radiation therapy,
19 radiation oncology, at the Medical College of
20 Virginia. Completed that program in 1975. Set up
21 the Department of Radiation Therapy at a local
22 clinic called McGuire Clinic affiliated with
23 St. Luke's Hospital here in Richmond. Helped
24 devise the Cancer Research Center at
25 Fredericksburg, Mary Washington Hospital and

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1 assisted in the design and development of the
2 Radiation Therapy Department, was the staff
3 physician there from, I vaguely remember, 1985 to
4 about 1990, somewhere around 1989 or 1990.

5 I left Fredericksburg and founded the
6 Department of Radiation Therapy and was partner,
7 part owner, of the Radiation Oncology Division at
8 Henrico Doctors' Hospital here in Richmond.

9 I retired from all medical practice and
10 all scientific endeavor July of 1996. Since that
11 time, I've devoted myself to retirement
12 activities. These include starting July of 1996
13 volunteer as executive secretary/treasurer of the
14 Virginia Academy of Science and continue in that
15 capacity having in the past served as chairman of
16 local arrangements of the Virginia Academy of
17 Science meeting here in Richmond, secretary of the
18 Academy, president of the Academy, past president
19 of the Academy.

20 The Academy has seen fit to bestow upon
21 me the fellowship, highest honor in the Academy
22 next to the Ivy Foreman Lewis Award for
23 distinguished service of the Academy, and I am
24 particularly proud of that honor because I was a
25 graduate student of Ivy Foreman Lewis at the

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1 University of Virginia, who was the cofounder of
2 the Virginia Academy of Science, so keeping it all
3 in the family.

4 Q Very good. So -- and I'm going to get
5 into a lot more detail in a moment, but when you
6 came to MCV in 1964 as an assistant professor of
7 pharmacology, could you give me a brief
8 description of your job responsibilities?

9 A Yes. Assistant professors in most
10 departments at the Medical College, not unique to
11 others, I was required to teach, and it was felt
12 particularly germane that I would teach, because
13 of my background in biophysics, help teach the
14 course in biology, or cellular biology, I believe
15 they called it at that time in the early '60s,
16 genetics and cellular metabolism and biophysical
17 considerations of cell behavior became very
18 important in the practice -- teaching of medicine.

19 So I taught part of the course in
20 cellular biology and because of my medical
21 background was asked to teach part of
22 pharmacology, elementary course, particularly in
23 the attribute of prescription writing. At that
24 time I also had the consultantship with The
25 American Tobacco Company.

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1 Q And weighing these two, what percentage
2 of your time was spent in your assistant professor
3 capacity vis-a-vis your consultancy capacity?

4 A The majority of my time to start with
5 was spent in academic pursuits including pursuit
6 of some research which was funded by American
7 Tobacco Company, some fundamental research that
8 was funded by American Tobacco, in terms of
9 consulting. It was little at first and gradually
10 grew in relative importance timewise.

11 Q At MCV in 1964, did you have a
12 supervisor or a boss or someone that you reported
13 to?

14 A In the sense of the academic
15 appointment, my immediate boss superior was the
16 chairman of the department Paul Stanley Larsen.
17 All professors/assistant associates report to the
18 chairman of the department in most institutions.

19 Q Is Dr. Larsen still living?

20 A No, Paul passed away sometime -- I
21 really don't remember when. It's on the order of
22 20 plus years ago he passed away.

23 Q And to whom did you report in
24 connection with your consultancy at American
25 Tobacco?

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1 A My primary contact person was Ed,
2 Edward Swain Harlow.

3 Q And so in 1965 you switched over and
4 started working at American Tobacco; is that
5 correct?

6 A It wasn't -- I wouldn't envision it as
7 a switch; it was a natural progression. I had
8 said that my activities timewise consulting
9 shifted more and more, became -- as I became more
10 acquainted with the Research Department, the
11 research people, the mission of the Research
12 Department of American Tobacco, I found I was
13 spending more time. The only switch was who was
14 paying my salary in the sense that when I became
15 intramural to the Research Department my salary
16 came directly from the company, not from the
17 Medical College.

18 Q And this was in 1965 at some point?

19 A Just about. I don't remember the exact
20 date. To me, it was such a logical, smooth
21 transition that it was only a difference of the
22 paycheck, and I don't remember the date of when
23 the paycheck shifted.

24 Q And physically during this point in
25 time, you were still located at MCV?

1 MR. RILEY: During which point in time?

2

3 BY MR. BAKER:

4 Q Let's start -- in 1964 when you came to
5 MCV, you had an office and facilities at MCV;
6 correct?

7 A Yes, I was assigned a modest office
8 space which also included a little laboratory
9 space in the Department of Pharmacology at the
10 Medical College of Virginia. I had no such
11 facility, no such office or place to sit at the
12 Jefferson Davis Highway Department of Research and
13 Development.

14 Q When did you physically have a place to
15 sit, if ever, at American Tobacco?

16 A This is not supposed to be a smart
17 answer. I had a place to sit in the library at
18 Jeff Davis Highway in some old room, but I had an
19 office assigned to me in the Bermuda Hundred
20 facility when that was completed but not
21 immediately after its completion. That was,
22 again, a transition; the office space was made
23 available later.

24 I essentially more lived at Bermuda
25 Hundred than I did at MCV; though my activities

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1 included visiting MCV and keeping track of -- I
2 continued a bit of teaching, as a matter of fact,
3 which didn't require a laboratory space.

4 Q So when you made this transition in
5 1965 from MCV to American Tobacco, you had a job
6 title, correct, at American Tobacco?

7 A I suppose to begin with it was still as
8 a consultant, and then, and I don't remember when,
9 the title was changed to coordinator of biological
10 research, I think, was the title that was hung on
11 me.

12 Q And can you give me a description of
13 what your duties were as coordinator of biological
14 research?

15 A I felt that my duties included keeping
16 abreast and apprised of the research that was
17 ongoing at the Medical College of Virginia,
18 particularly in the area of interest, research,
19 that was being funded by American Tobacco Company
20 through grant to the Medical College of Virginia.

21 I felt that I needed to do some reading
22 of the literature, which at this point was --
23 exceeded voluminous, and I didn't try to keep up
24 with every publication. My very warm relationship
25 to Paul Larsen meant that if he felt something

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1 should be called to my attention he called it to
2 my attention and I would read it.

3 As time went on, one of the activities
4 was to look in on programs, sponsored research,
5 extramural to both Research Department and MCV.
6 So at that point it was sort of to educate myself
7 to come up to speed with what was happening in the
8 area of biological research of tobacco.

9 Q And am I correct in understanding that
10 from 1965 to 1970 your job title was coordinator
11 of biological research at American Tobacco?

12 A I think that's about right, yes.

13 Q So during this time period from '65 to
14 '70, did your job responsibilities change in any
15 manner?

16 A Not from what it was to begin with.

17 Q To whom did you report at American
18 Tobacco?

19 A I always reported to and related to
20 Mr. Ed Harlow.

21 Q And who was Mr. Harlow?

22 A Mr. Harlow's title, I believe, was
23 assisting manager of research in the Department of
24 Research at American Tobacco Company. I don't
25 know exactly at what time development was added to

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1 the monicker of the division, but essentially he
2 was assistant manager of R & D in the common
3 sense. His exact title may have been something
4 like assistant manager of research.

5 Q So from 1965 to 1970 when you were
6 coordinator for biological research at all times
7 during that period you reported to Mr. Harlow?

8 A Yes.

9 Q In 1970 did your job title change?

10 A Yes. I believe I was assistant manager
11 of basic materials research, something like that.

12 Q And did your job responsibilities
13 change in connection with that new job title?

14 A I continued essentially doing what I
15 had been doing. I changed offices in the sense
16 that physically where I sat was different, and I
17 was assigned variously to some people within the
18 Research Department to be their titular
19 supervisor. Some of the people doing basic
20 materials research didn't exactly report to me,
21 but I was asked to stay abreast of that research,
22 research activities.

23 Q What type of research activities were
24 these?

25 A Some of these had to do with the

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1 analysis of cigarettes from the standpoint of
2 trying to estimate in various brands of cigarettes
3 the proportion of various kinds of tobacco leaf.

4 Q When you were coordinator for
5 biological research, did anyone report to you at
6 that time?

7 A Not directly, no.

8 Q And then how long did you hold the
9 title of assistant manager of basic materials
10 research?

11 A From the time I was asked to become
12 involved in that activity until the time I left
13 the company in 1971.

14 Q Did you ever hold the title assistant
15 manager of leaf services?

16 A I really don't think so. I can't
17 remember that I was. I think that the fellow who
18 had that title and who had retired before I moved
19 into his physical office and some of his
20 activities may have had a title something like
21 that.

22 Q Changing gears a bit, prior to coming
23 to the Medical College of Virginia in 1964, what
24 was the focus or focuses of your research, for
25 example, when you were at Rhode Island?

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1 A Rhode Island Hospital was in some ways
2 a disappointment to me in as much as my title was
3 research assistant, Department of Oncology, and
4 although we had set up the facilities, more and
5 more of my time was demanded in the clinics of the
6 Rhode Island Hospital in as much as I attended
7 both private clinics and open clinics, which were
8 held numerous times during the week, actually
9 seeing, attending to, prescribing chemotherapeutic
10 agents for cancer and leukemia patients.

11 Q In the 1950s when you were working
12 towards your Ph.D. in biophysics and your M.D. as
13 well, were you also doing research at that point
14 in time?

15 A The pursuit of the doctorate in
16 biophysics involved course work and accomplishment
17 of demonstration of facility with a couple of
18 foreign languages to read scientific literature,
19 and more especially to do research in most
20 universities, the degree of doctorate is awarded
21 to people who have done somewhat mentored but
22 independent and knew research or pursuit of lines
23 of research that are not intended to be
24 repetitious of other activities, that is,
25 exploring new fields or extending new fields of

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1 activity.

2 So when I was a graduate student at
3 St. Louis University, I was involved in the
4 Pathology Department at the dental school as part
5 of my fellowship in the department of biophysics
6 in doing some animal work, and my research in
7 biophysics was a very far cry from cancer research
8 in the sense that we studied the survival of cells
9 after low temperature freezing.

10 Q But prior to coming to the Medical
11 College in 1964, you had experience using
12 laboratory animals to do research; is that
13 correct?

14 A Yes. If I may back up, working on my
15 master's degree, it was in biology, specifically
16 botany and not in animal work. When I went to
17 Harvard, briefly assisting in research at Harvard
18 University, I studied mechanisms of cell division.

19 When I went to Oak Ridge, I was first
20 assigned to the Pathology Department headed by
21 Jacob Furth, who was internationally known in
22 basic research of cancer, nonclinical, and
23 transferred into study of the survival of
24 bacteria, specifically Escherichia coli, colon
25 bacteria, under various conditions of exposure to

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1 radiation, which you can readily see was a lead
2 into becoming involved in radiation therapy.

3 I did actual radiation experiments in
4 animals with Furth and in bacteria in a pure
5 nonanimal system to explore effects of ionizing
6 radiations on cellular systems.

7 Q And what kinds of laboratory animals
8 did you use in these experiments?

9 A The kinds of animals that were used at
10 Oak Ridge were mice and rats of exposure to
11 ionizing radiations, various kinds of ionizing
12 radiations including neutrons and exposure of
13 rabbits to neutrons and some basic studies
14 involving dogs as laboratory animals but not to do
15 with cancer; these were studies in the
16 hemodynamics of altering cardiovascular systems in
17 dogs.

18 Q What is the value of using laboratory
19 animals in biological research?

20 MR. RILEY: Object to form.

21

22 BY MR. BAKER:

23 Q Is there a value to using animals in
24 biological research?

25 A Yes, I think there is.

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1 Q If so, what is that value?
2 A I think it gives lead to the
3 possibilities with respect to consequences of
4 human disease, for example. We -- they do not
5 directly do research on humans, and certain
6 questions have to be answered in hopefully a
7 fundamental way. A rat and a rabbit are not a
8 man, but they represent, to my way of thinking,
9 ways of approaching which do not necessarily
10 result in answers, but since you can't do many
11 kinds of research -- there's some kinds of
12 clinical research that can be done and are going
13 on right at this moment, but these are appropriate
14 things.

15 You can't do all kinds of research in
16 human beings, so you have to do what's next or
17 third best and, that is, use a cellular system or
18 an animal system. And in practice of that, I
19 would say often is not -- a cellular system
20 doesn't match an animal system and an animal
21 system doesn't match man. They are leads, but
22 they are not the final answer.

23 Q Can research results using laboratory
24 animals sometimes be extrapolated to humans?

25 A Well, if you look at an understanding

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1 of what extrapolated means, yes. But when you're
2 talking about a phenomenon, you have limits from A
3 to Z, extrapolation goes out of the alphabet, so
4 extrapolation means you're extending beyond your
5 real knowledge to speculation, but speculation is
6 not necessarily bad in the sense that it will give
7 you leads to look back at A to Z.

8 Forgive me lecturing you.

9 Q Well, is it implicit in the conduct of
10 animal experimentation the assumption that it can
11 lead to valid conclusions respecting the harmful
12 effects of something in humans?

13 MR. RILEY: Object to the form of the
14 question. There's no foundation for it. It's
15 been asked and answered, and I think the
16 witness's testimony is inconsistent with --
17 well, I think there's no foundation for the
18 question the way you've asked it.

19 You can answer it, Doctor.

20 THE DEPONENT: Would you please either
21 state or restate the question to me, please.

22

23 BY MR. BAKER:

24 Q Is it implicit in the conduct of animal
25 experimentation that that experimentation can lead

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1 to assumptions regarding the effects on a human?

2 MR. RILEY: Same objection.

3 THE DEPONENT: Well, I like your choice
4 of word "assumptions" because that's what you
5 would be dealing with. Conclusions, no;
6 assumptions, yes. I think animal work can --
7 why animal is done is that much work, much
8 kind of things that need to be answered cannot
9 be done morally, ethically in humans. Then in
10 order to get some lead to formulate thinking,
11 you resort to tissue systems or animal
12 systems.

13 May I elaborate on that in terms of
14 what I'm trying to say?

15

16 BY MR. BAKER:

17 Q Certainly.

18 A At Oak Ridge, as you well know was a
19 responsive and a big program at one time, it was
20 thought important to study Escherichia coli to
21 elucidate possible mechanisms of radiation injury
22 and protection, and what we did with E. coli could
23 not possibly be directly extrapolated to man. But
24 what we did made some suggestions of things of
25 what might be useful for man.

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1 For example, using E. coli, nobody
2 minds zapping and nuking bugs, we were able to
3 demonstrate that certain chemicals seem to afford
4 protection against the harmful effects of ionizing
5 radiations including lethal effects, and one of
6 the chemicals which showed great promise was --
7 I'm lecturing you, forgive me -- British
8 antilewisite, the agent developed by the Brits to
9 combat nerve gas.

10 British antilewisite worked very well
11 because it was a particular kind of chemical --
12 besides being a real stinker, when we opened the
13 bottle in the lab, people on the third floor would
14 scream; sulphydryl smelling worse than six skunks.
15 Because of that odor, it would be a little hard to
16 convince people to wrap themselves up in British
17 antilewisite and smell like ten skunks. Yet that
18 elucidated some mechanisms, and that mechanism was
19 that certain chemicals containing sulphydryl
20 moiety, as the chemists say, can block some
21 effects of ionizing radiations.

22 That didn't lead to using British
23 antilewisite as a radiation protector for
24 soldiers, for example, but it led your thinking in
25 the direction of some of the mechanisms. And

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1 somebody else carried that research forward; I was
2 not involved in any of that.

3 So there is an example of extremes from
4 a bug to a person that research is justifiable
5 providing you don't say, A jumps to Z, that you
6 say, uh-huh, we have the answer. It provides
7 leads. So I think that animals may fall between
8 cells and man, but I don't think that you can take
9 animal work and go directly to man.

10 There have been many circumstances
11 where animal work has been shown -- and I have
12 been mercifully far enough away from experimental
13 oncology, but I do remember that a number of
14 studies of certain chemicals shown to affect the
15 course of cancer in cell systems or in animals
16 didn't work in man. And you would think, well,
17 here's something that's really good, that really
18 works in a mouse; unfortunately, clinically, it
19 has often little or no value.

20 Q Are there other occasions, though, when
21 it works not only in the animal but also in the
22 human?

23 MR. RILEY: Asked and answered.

24 THE DEPONENT: Pardon?

25 MR. RILEY: I just made an objection

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1 for the record, Doctor; you can go ahead and
2 answer. You can answer his question.

3 THE DEPONENT: Now, you've pulled me
4 off track. Please --

5

6 BY MR. BAKER:

7 Q You just stated that there are some
8 instances where you do an animal experimentation
9 and it does not apply to humans --

10 A Right.

11 Q -- in the practical sense. Also in the
12 practical sense, are there also those occasions --

13 A It provides leads.

14 Q -- when you do an experimentation on an
15 animal and it also pans out that it applies to
16 humans as well?

17 MR. RILEY: Same objection.

18 THE DEPONENT: First of all, I did not
19 do any of that work, so I don't think I'm in a
20 position to say I'm an expert. But some --
21 let me go back to some of the things that I
22 remember and know about.

23 Some of the agents that had been
24 employed in the treatment of cancer came from
25 work in the lab using cells, work in the lab

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1 using tuna cells in culture and work in the
2 lab with experimental animals. But you
3 cannot -- you cannot guarantee because you've
4 done it and done it well that it is
5 applicable.

6 Again, I would emphasize from my
7 perspective since certain things cannot
8 ethically or justifiably be done in humans,
9 you've got to do something, and what it means
10 hopefully comes out in subsequent work testing
11 the applicability. As with the chemotherapy
12 agents, some of those things looked with great
13 promise, and when they were tried in clinical
14 trials in human beings, clinical trials being
15 carefully monitored by the federal government
16 to be sure that they are ethical, morally
17 correct, well done, when they don't pan out,
18 they don't pan out. When they do pan out, you
19 are happy and you move ahead. But just
20 because something works in one system doesn't
21 mean that it has to be applicable in another
22 system. That has to be tested.

23

24 BY MR. BAKER:

25 Q Are you familiar with Ernest Wynder's

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1 1954 mouse painting study?

2 A Only to the extent that many, many
3 years ago I read it. I never met Dr. Wynder, and
4 I never went to his laboratory. I would say that
5 a long time ago I looked at that.

6 Q Do you recall the results of that
7 study?

8 A Not in detail. And you'll have to be
9 patient with me; I've been trained all my life to
10 deal with details, and as I get older, I try to
11 compensate by dealing in generalities.

12 In generality, I believe that
13 Dr. Wynder claimed that the application, chronic
14 application, of cigarette smoke condensate in high
15 concentration correlated with the development of
16 skin tumors in -- I guess it was mice. I don't
17 remember whether it was rats or mice, but there
18 was associated development of skin tumors in mice
19 in his experiments. Let's say rodents because
20 that would cover rats and mice, also hamsters and
21 guinea pigs, but I don't think he dealt with
22 those.

23 Q Would you agree, then, that the results
24 of that study provided leads on the issue of
25 tobacco and disease?

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1 A I think that that, I would say,
2 nonpartisan view is that that's an extreme
3 extrapolation, and the reason that I say extreme
4 is it is from mouse to man, it is from skin to
5 respiratory system, it is from God knows how much
6 on the mouse to I don't know how much in man, but
7 certainly the amount of the -- the reported amount
8 of condensate was probably many orders of
9 magnitude more than tissues humans are said to be
10 exposed to cigarette smoke.

11 Q So did this study contribute nothing to
12 the question of whether cigarettes cause disease?

13 A I think it stirred up a lot of
14 interest. That might be regarded as a
15 contribution.

16 Q Is it your position that the use of
17 laboratory animals is a valuable study -- is a
18 valuable tool to study the biological effects of
19 cigarettes?

20 MR. RILEY: Let me object. I think the
21 question has been asked and answered several
22 times. I think he's discussed at length what
23 he thinks the utility of animal experiments
24 are.

25 MR. BAKER: We were discussing

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1 generally; I'm talking specifically cigarettes
2 now.

3 THE DEPONENT: Specifically, under the
4 same constraints, I would never say that
5 cellular or animal systems can be extrapolated
6 immediately to effects of cigarette smoke on
7 smokers.

8

9 BY MR. BAKER:

10 Q During your ten --

11 A But if it's all you have, it's what you
12 do. Otherwise you do nothing and sit around.

13 Q Is it better to do nothing and sit
14 around or to do something?

15 A As a scientist, more than as a
16 physician, I'm always prying and asking questions
17 and looking. I don't know that a doctor would go
18 around and turn over every rock looking for a
19 toad, but a scientist sort of is tempted to turn
20 over the rocks.

21 Q During your tenure at American Tobacco,
22 was there a company position on the value of
23 animal experimentation?

24 A It was never expressed to me one way or
25 the other. I had discussions with Dr. Larsen

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1 about that. I had discussions with Mr. Harlow
2 about that.

3 Q But you were aware of no stated
4 position by American Tobacco on the value of
5 animal experimentation?

6 MR. RILEY: Asked and answered.

7 THE DEPONENT: I don't know that there
8 was a position. However, I would say that if
9 they were logical, they would raise the same
10 question that I do about the extrapolation of
11 things from test systems to man.

12

13 BY MR. BAKER:

14 Q If they were logical, would they also
15 recognize that it's a stone that should be turned
16 over in order to find answers about whether or not
17 cigarettes cause disease?

18 MR. RILEY: Objection to the form.

19 THE DEPONENT: I think so, personally.
20 I can't speak for American Tobacco Company nor
21 the Research Department, but I would think
22 that it would be logical to start turning over
23 some stones.

24

25 BY MR. BAKER:

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1 Q You said just a moment ago that you
2 discussed animal experimentation with Dr. or was
3 it Mr. Harlow?

4 A Mr.

5 Q Mr. Harlow at American; is that
6 correct?

7 A Yes.

8 Q Do you recall what his view on animal
9 experimentation was and its value?

10 A I think Ed Harlow's perception as a
11 chemist, trained as a chemist, was from my
12 background, and that is put in the vernacular, if
13 all you have is a hammer, everything looks like a
14 nail. You ask questions and evaluate what you get
15 and in light of whatever limitations.

16 Q Did Mr. Harlow ever express to you the
17 desire to do animal experimentation in-house at
18 American Tobacco?

19 A That was discussed, yes, and in very
20 specific terms what would be the object of such
21 investigation.

22 Q And in 1965 when you came to American,
23 did Mr. Harlow want to do in-house animal
24 experimentation?

25 MR. RILEY: Object to the form of the

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1 question.

2 THE DEPONENT: I think that that
3 probably evolved but at some time; I don't
4 know at the time of my employment in 1965
5 Ed Harlow envisioned an intramural program. I
6 think that these things were a matter of
7 evolution, not a matter of, at this moment
8 there is a policy.

9

10 BY MR. BAKER:

11 Q How did you come to return to Richmond
12 first at MCV and then at American Tobacco from
13 Rhode Island?

14 A I'm not ashamed. It is a personal
15 thing. I've been associated with Louis Leone at
16 MCV.

17 Q Louis?

18 A Leone at MCV. He was the assistant
19 professor of medicine, may have been an associate
20 professor of medicine. In 1960 he went to
21 Rhode Island Hospital to head up their cancer
22 research program; Rhode Island Hospital not
23 previously having such a program. Because of our
24 affiliation at MCV or our acquaintanceship at MCV,
25 when I finished my internship, or when it was

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1 apparent that I would finish my internship, he
2 invited me up to look at being research associate
3 in his new department.

4 Obviously one of the things that you do
5 when you do research, particularly in the
6 biological/biomedical field, is besides evolving
7 conceptually what you think you need to do or want
8 to do, you look for funding. Some time after
9 arriving at Rhode Island Hospital, I was
10 encouraged to make out a grant application to
11 the -- I guess it was National Cancer Institute,
12 and at that time, it was appropriate, as is to
13 this day to my understanding, mercifully I'm not
14 doing it anymore, to ask for salary
15 supplementation as part of the activities of
16 pursuing research under grant form.

17 I did that, and he said that what I had
18 proposed was not acceptable, and this is detail,
19 he furthermore cited the director of the hospital
20 as objecting to that. When I talked to the
21 director of the hospital about that, he said he
22 never said that; that I could make a
23 million-dollar-a-year supplement if I could get
24 that amount of money to Rhode Island Hospital.
25 When I talked to Dr. Leone, he said, well, I

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1 really don't want you to get that; I lied to you.
2 I found that unacceptable.

3 At that moment I decided I could no
4 longer work with a person who lied, and so the
5 reason I came to Richmond was I was disenchanted
6 with a superior associate who was a liar. A
7 matter of principal, sir.

8 Q And so who did you approach? Did you
9 make an approach to MCV at that point?

10 A No. When the decision was made by me
11 to return to Richmond or to leave Rhode Island
12 Hospital, that decision was made in 1963, and that
13 coincided with my parents' decision to move from
14 Richmond to the suburbs, to Hanover County, to
15 where I now reside. So when I came home to help
16 my folks move physically from Richmond to Hanover
17 County, I confided in some friends that in fact I
18 was disenchanted, disillusioned and wanted to
19 leave Rhode Island Hospital.

20 Several people, who are not even
21 scientists, but really fairly long-term friends,
22 volunteered to cast about for me to find out if
23 there were opportunities, they thought it would be
24 a good idea if I came back home, and suggestions
25 were made for me to look at some opportunities,

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1 and so I pursued several at their invitation or
2 their introduction of me to them.

3 Q And I guess as pertains here, who at
4 MCV -- was someone at MCV introduced to you, then?

5 A Yes.

6 Q And that was?

7 A I really think -- I'm not sure of this,
8 but I really think it was Paul Larsen was the
9 person who originally expressed an interest in --
10 about talking.

11 Q At the same time did someone at
12 American Tobacco express an interest in talking?

13 A Yes, Ed Harlow. And I can't remember
14 whether I met Paul Larsen and talked with him
15 before I met Harlow; I think that was the way it
16 went. But it seemed to me very logical to bring
17 Mr. Harlow into the loop of the decision of
18 whether or not to come back to Richmond and/or
19 affiliated with MCV because of the very
20 long-standing association that the Medical College
21 had had with the Research Department at American
22 Tobacco Company or Medical College/American
23 Tobacco Company.

24 Q Did -- so Mr. Harlow described a
25 potential job opportunity at the American Tobacco

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1 Company to you?

2 A Not at that time. We had a friendly
3 lunch, and he indicated that I would be welcome to
4 come and visit him at the laboratory and to meet
5 Dr. Bill Harlan, who was the managing director of
6 Research & Development, or Research at that time.
7 I really forget when Development was hung into the
8 acts of R & D. Mr. Harlow, it's my understanding,
9 reported to Dr. Harlan, and so I was introduced to
10 Dr. Harlan. We chatted, as scientists would,
11 where did you go to school and what have you been
12 doing lately, that sort of get-acquainted,
13 friendly basis thing.

14 There wasn't at that time any mention
15 of any interest on the part of me or American, but
16 the interest was the possibility of supporting
17 American Tobacco Company, possibly supporting some
18 research, continuing to support some research at
19 MCV wherein I might be uniquely trained or
20 qualified to do such studies.

21 Q When you came back to MCV in 1964,
22 contemporaneous with that, however, was a
23 consultancy with American Tobacco; is that
24 correct?

25 A Pretty much. I don't think it

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1 happened -- I'm not so sure it happened
2 instantaneously, so simultaneously I'm not sure
3 of, but it came along.

4 Q Was it your understanding when you came
5 back to MCV that a year later that your position
6 would evolve into a position with American
7 Tobacco?

8 A Hardly.

9 Q When did that decision come about that
10 you would switch over to American Tobacco?

11 A At the risk of sounding conceded, maybe
12 it happened after I passed muster in the sense
13 that I had demonstrated integrity and due
14 diligence in research.

15 Q At that point in time did you have a
16 conversation with Mr. Harlow about a job at MCV?

17 MR. RILEY: At what point in time? I'm
18 sorry.

19 MR. BAKER: Once he passed muster.

20 THE DEPONENT: Well, I really think
21 that somewhere along the line after or roughly
22 mid-1964 and mid-1965, one of the
23 conversations may have been with Dr. Harlan,
24 Bill Harlan, as to whether I would find it
25 comfortable to move over and be more closely

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1 associated with American Tobacco, the Research
2 Department of American Tobacco Company.

3 BY MR. BAKER:

4 Q And you were? And you told -- would
5 you be comfortable?

6 A Yes. Inasmuch as -- to elaborate,
7 inasmuch as a bride and a groom get together, I
8 think that I'm needed to feel comfortable with an
9 association with a big organization.

10 Let me say, I had never had employment
11 in the industrial sector. I had always been in
12 either academic or federal subsidized research. I
13 had had no industrial experience.

14 And to rattle on, a funny fellow once
15 asked me, was I prepared to enter the gladiatorial
16 arena of industrial research, not associated with
17 American. I thought about it and said, I think
18 so; I have survived the arena of academic
19 research; that I had the impression that
20 industrially the attack is frontal and not from
21 the back.

22 So having been exposed to that kind of
23 thinking, I needed, for my own satisfaction, to
24 feel comfortable about a prospective employer, and
25 any prospective employer certainly with any sense

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1 at all looks at the qualifications of a
2 prospective employee.

3 Q Prior to moving over to American
4 Tobacco in 1965, I guess --

5 A Give or take.

6 Q -- give or take, did either Mr. Harlow
7 or Mr. Harlan --

8 A Dr. Harlan.

9 Q -- Dr. Harlan inquire into your views
10 on the biological effects, if any, of tobacco on
11 humans?

12 A I can't recall that that was ever
13 specifically discussed.

14 Q You never discussed whether tobacco
15 causes disease?

16 MR. RILEY: Asked and answered.

17 THE DEPONENT: I don't recall ever
18 discussing that as a specific sit down and
19 discuss that as a particular topic. I do
20 think, and I'm running some hazard of
21 elaborating here, I do think that things can
22 be communicated between intelligent people
23 without saying A, B, C, D are the first
24 letters of the alphabet.

25

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1 BY MR. BAKER:

2 Q In 1965 did you have a view on whether
3 or not tobacco use was hazardous to humans?

4 A I did not believe, have the conclusion,
5 that the use of tobacco was hazardous to humans --
6 to all humans. I can say that I had some
7 reservations about certain people smoking, and if
8 you'd like, I'll be more specific.

9 Q Certainly.

10 A When I rotated through the Richmond VA
11 Hospital, McGuire Veterans Hospital here in
12 Richmond or the suburbs of Richmond on pulmonary
13 service, I saw patients who were smoking who --

14

15 (Interruption.)

16

17 THE VIDEOGRAPHER: The time is
18 10:09 a.m., and we're off the record.

19

20 (Discussion off the record.)

21 (Record read.)

22

23 THE VIDEOGRAPHER: The time is
24 10:22 a.m., and we are now back on the record.

25

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1 THE DEONENT: -- who were missing
2 fingertips. And I asked my mentor professor
3 of medicine, why does this fellow not have
4 fingertips? I didn't ask why he was smoking,
5 but I asked why he didn't have fingertips. He
6 had the diagnosis of Raynaud's disease, and
7 Raynaud's disease is a situation where an
8 individual because of some unique biochemical
9 lack or presence overreacts to cold, to
10 anoxia, to certain chemicals by profound
11 constriction of the peripheral arterials. So
12 this fellow had developed gangrene of his
13 fingertips. I didn't look at his toes, but I
14 guess he lost some of his toes too.

15 Now, cold, things like carbon monoxide
16 which combined with hemoglobin to block
17 oxygen, nicotine sometimes can cause
18 constriction. This fella chose to smoke, and
19 I didn't think he should be smoking. And if I
20 were in an advisory capacity in a clinic, I
21 would advise patients who have Raynaud's
22 disease, a fairly uncommon situation this
23 Raynaud's phenomenon, which is not quite as
24 bad as Raynaud's disease, I guess, it's out of
25 my field, but people who have Raynaud's, I

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1 don't think they should smoke, any more than
2 they should spend any time in the refrigerator
3 or any time with their hands in cold water or
4 any of the things which aggravate their
5 predisposed condition.

6 So that would be a clear indication --
7 I think I understand the mechanism. I'm not
8 sure I understand the mechanism, but I think I
9 understand the sequence of why I would say to
10 a patient -- and I've never had a patient who
11 had Raynaud's, I've seen them -- to say to
12 that person, I don't think you should smoke
13 because I see a sequence.

14 Now, the fact -- this is argumentative.
15 The fact that the patient smoked didn't cause
16 Raynaud's; the patient had Raynaud's and he
17 smoked, and there were consequences to that.

18

19 BY MR. BAKER:

20 Q In 1964, in 1965 -- 1965 when you
21 joined American Tobacco, did you have a view of
22 whether tobacco caused lung cancer?

23 A I did not personally believe at that
24 time that smoking caused lung cancer.

25 Q Do you believe now that smoking causes

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1 lung cancer?

2 A To parse words, I believe that
3 cigarette smoking may be a cause of lung cancer.
4 Do you want me to elucidate on the "may"?

5 Q I think I understand it.

6 MR. RILEY: Did you finish your answer,
7 Doctor?

8 THE DEPONENT: May be a cause of lung
9 cancer.

10

11 BY MR. BAKER:

12 Q Did you have a view in 1965 that you
13 just testified that you did not believe that
14 smoking --

15 A In 1965, I was a smoker, and a prudent
16 person who believes that cigarette smoking is the
17 cause of lung cancer would not have -- or a cause
18 of lung cancer would not have continued to smoke,
19 which was pleasurable to me.

20 Q When you -- in 1964 when you began
21 discussions of evolving or changing over to the
22 American Tobacco Company, did you have discussions
23 with Mr. Harlow or Dr. Harlan about a proposed
24 in-house biological research program at the
25 American Tobacco Company?

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1 A Not at first but that evolved, yeah,
2 before I made the transition to the Department of
3 Research & Development.

4 Q So it was your understanding as you
5 made that transition that American wanted to
6 embark on an in-house biological research program?

7 MR. RILEY: Object to the form of the
8 question, no foundation, misrepresents the
9 witness's testimony. Go ahead, Doctor.

10 THE DEPONENT: I had no way of knowing
11 the opinion, intent or posture of the American
12 Tobacco Company. I had, what you might call,
13 a reading. I had a feeling of what Mr. Harlow
14 thought we might undertake.

15

16 BY MR. BAKER:

17 Q And that was? Could you explain that
18 further?

19 A That we would continue the work that I
20 had started under grant from American Tobacco,
21 continue that in a different form within the
22 company, and that could take two forms: It would
23 either be work done by American Tobacco Company,
24 Research Department people, or it could be done by
25 people from MCV either at MCV or in some cases

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1 where facility's space did not present that be
2 done at the newly planned research facility
3 Bermuda Hundred.

4 Q In 19 --

5 A Excuse me. Without any specific
6 locking in to the how, that is, who would do it
7 exactly, or what was done exactly. It was a
8 somewhat open-ended approach.

9 Q Well, in 1965 was it your understanding
10 that American Tobacco was at least planning to
11 embark on an in-house biological research program?

12 MR. RILEY: Object to the form of the
13 question, asked and answered, no foundation.

14 THE DEPONENT: I'll persist in
15 answering to repeat.

16 Research done on premises either
17 contract or grant to the Medical College or by
18 personnel directly employed by American
19 Tobacco.

20 To broaden that a bit, some people are
21 better trained or better equipped to do some
22 things, and some places are better equipped to
23 allow people to facilitate conduct of things.
24 So the very best situation is where you have
25 people who are competent, recognized, capable

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1 who have the facilities to do the work.

2 At the Medical College, there were
3 other grants, other research activities, even
4 within the Department of Pharmacology, and
5 also the obligation of teaching so that
6 certain things as might be envisioned or
7 projected would not be possible at the
8 facilities at MCV, Department of Pharmacology.

9 At that time the Research Department of
10 American Tobacco Company had, in my estimate,
11 no expertise to do research in the biological
12 field. There were no biological researchers
13 that I had met, people had had background in
14 biology, but most of the people that I met and
15 had been become acquainted with at the
16 Research Department essentially were
17 chemically trained or managerially trained,
18 not biologically trained.

19 Does that -- is that an answer or is
20 that a rambling?

21

22 BY MR. BAKER:

23 Q I'll ask some more questions.

24 A Okay.

25 Q So am I correct in understanding that

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1 at least one idea in 1965 of Mr. Harlow and
2 Dr. Harlan was --

3 A I don't know about Dr. Harlan but
4 Mr. Harlow.

5 Q Mr. Harlow was -- one of various
6 possibilities was Mr. Harlow was of the opinion
7 that American could conduct in-house biological
8 research?

9 A Yes.

10 MR. RILEY: Objection, asked and
11 answered.

12

13 BY MR. BAKER:

14 Q Did you ever discuss in 1965 with
15 Dr. -- or Mr. Harlow what the goals of an in-house
16 biological research program would be? And by
17 "in-house," I mean conducted by The American
18 Tobacco Company at American Tobacco Company
19 facilities.

20 A It was a little bit more general than
21 that; it was along the lines of what might be done
22 either by MCV people -- or ATC people specifically
23 at Bermuda Hundred facility, and that led into
24 what kind of equipment or what kind of facility
25 should be presented, not that the design of the

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1 facility designs the experiments or the objects of
2 the experiments.

3 It's -- I'm always prone to give
4 analogy, but you might buy a nice telescope, and
5 obviously you're going to look at the stars, but
6 that doesn't mean that you're going to pursue a
7 counting of the craters on the moon as a specific
8 objective. You acquire the telescope in order to
9 do observations generally.

10 Q As the Bermuda Hundred facility was
11 being constructed, was it envisioned that it would
12 have an animal research facility?

13 A Yes.

14 MR. RILEY: Object to the form of the
15 question.

16 THE DEPONENT: Yes.

17

18 BY MR. BAKER:

19 Q Can you describe a little bit what type
20 of facility was envisioned?

21 A I believe that there were two rooms
22 that were specifically designed to maintain the
23 highest level of sanitation possible in a
24 situation where you would confine and contain most
25 any kind of laboratory animal, that is, center

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1 floor drain, water to wash down, coved corners and
2 specially treated walls and floor, much like a
3 glorious bathtub room, so that if you wished to
4 have -- to house animals in that room, that that
5 room would have the highest degree of maintaining
6 cleanliness, maintaining healthy animals and
7 providing for a healthy, sanitary situation.

8 At that time, in contrast, a lot of
9 laboratories were very hard to keep animal
10 droppings, keep animal urine, keep animal smells,
11 keep bacteria associated with animals that are
12 normally present for animals. If you have an old
13 room that has square corners and cracks and
14 crevices and not properly vented, all that sort of
15 thing, it's not state of the art, and it's -- you
16 might be forced to do -- to confine animals and do
17 work in those kind of facilities.

18 But when you were in a position to
19 provide the very best, that doesn't mean that you
20 are committed to doing something, but at least it
21 is a facilitation, a possibility if you do
22 something, do it in the very best way.

23 Q So the thinking was, if they were going
24 to do it, it was going to be state of the art; is
25 that correct?

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1 A Yes.

2 MR. RILEY: Object to the form.

3 THE DEPONENT: Yes. I think I said
4 that.

5

6

7 BY MR. BAKER:

8 Q Were you involved at all in the design
9 or layout or the decisions of what types of
10 equipment to put in this in-house biological
11 research facility?

12 A It's been a long time ago, but I
13 remember meeting with the architectural firm to
14 specify what I thought would be highly desirable
15 features of these two rooms such as the epoxy
16 treatment of the walls and floors and center floor
17 drain and drain of the floors, and I think maybe
18 there was some motion in the direction of looking
19 in catalogs or asking suppliers for stainless
20 steel housing for small rooms.

21 Q So there was some fairly detailed
22 thinking going on about this in-house biological
23 research facility; correct?

24 MR. RILEY: Object to the form of the
25 question.

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1 THE DEPONENT: I don't know how much
2 detail. I do vaguely remember that I was
3 involved in making, as a consultant, the
4 recommendation that if the facilities were to
5 be built that some of the things that I
6 thought were desirable would be incorporated,
7 and I believe they were incorporated.

8 There was finally constructed in that
9 building at Bermuda Hundred some ancillary
10 office space, laboratory space, into
11 euphemistically called animal rooms.

12

13 BY MR. BAKER:

14 Q And what types of animals were intended
15 to be housed in these rooms?

16 MR. RILEY: Objection to the form.

17 THE DEPONENT: Well, if I had anything
18 to say about it, that decision was not made --
19 I had not arrived, and I don't think the
20 company had arrived, at that point.

21

22 BY MR. BAKER:

23 Q There were proposals, were there not,
24 of what types of animals to use?

25 A I don't remember the details of

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1 proposals of what -- if you're going to build a
2 general facility, you think in terms of small
3 rodents. You don't think of chimpanzees, but you
4 do think of small rodents.

5 Q Was there any thought of using dogs or
6 housing dogs?

7 MR. RILEY: Object to the form of the
8 question.

9 THE DEPONENT: No, small rodents.

10

11 BY MR. BAKER:

12 Q Rabbits?

13 A Possibly rabbits, yes. They are larger
14 rodents; they are the cuddly, fuzzy ones.

15 Q Was it your idea as this planning was
16 going on that the animal studies be for acute or
17 chronic animal studies?

18 A Again, I don't think that acute and
19 chronic were words that ever passed my lips or
20 into my ears.

21 Q What is the --

22 A Would you like for me to volunteer the
23 object of any such research as would be done
24 there?

25 Q I would appreciate that, Doctor.

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1 A All right. This may seem like a
2 tedious lecture.

3 Q I'm here to learn.

4 A If it is said and if it can be
5 established that certain things are present, for
6 example, in mainstream cigarette smoke like carbon
7 monoxide, you ask yourself the question, not first
8 what does carbon monoxide do to the smoker, but
9 first question is, how is this smoker exposed to
10 carbon monoxide. That was the goal, the
11 objective, of some of my research done in 1964/'65
12 at MCV.

13 The research was done at MCV as a
14 facility because it was adequate for what we did,
15 and I think we did some rather elegant work with
16 human volunteers, some of whom were occasional
17 smokers and some of whom were more than
18 occasional, regular smokers, some of whom smoked
19 filtered cigarettes and some of whom smoked
20 regular, nonfiltered cigarettes, and we had a
21 couple of people who were nonsmokers who came in
22 not as smokers but to participate in the program,
23 and I won't go on so much about that.

24 But the upshot of that work was that
25 the uptake and elimination by human beings,

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1 subject to the limitation of who we had, smokers
2 and nonsmokers, is not affected by smoking. That
3 is, if you smoke cigarettes and if the laboratory
4 at some company, including American Tobacco,
5 indicates that some percentage of mainstream smoke
6 is carbon monoxide, anytime you burn anything you
7 get some carbon monoxide, then we found that the
8 uptake and elimination by human beings of carbon
9 monoxide is handled the same whether it's from a
10 tank of carbon monoxide chemically produced or
11 carbon monoxide in mainstream smoke. And that is,
12 to give the A, B, C, that's step B.

13 Step A, one has demonstration that
14 substance hoopdeedo is present. Step B is, how is
15 hoopdeedo taken up, and I think we answered that
16 pretty well, from carbon monoxide. A question,
17 then, is, if someone at X-Y-Z stage of thinking
18 says that cigarette smoking does something, the
19 question is, why does that substance get there in
20 the first place, why does it get there.

21 So step B has nothing to do with the
22 effects of cigarette smoking on human beings, but
23 rather, do compounds, whatever you call them,
24 things that may be present in cigarette smoking
25 and concentrations, why do they get, when a person

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1 smokes, do they get it.

2 Now, going back, long lecture, going
3 back in history, one of the very earliest
4 questions asked by the Research Department of
5 American Tobacco Company, which I had nothing to
6 do with, but was acquainted with some of the
7 people who did this work, does nicotine survive a
8 paralysis? Does nicotine go into mainstream
9 smoke? It was known by analysis of tobacco that
10 nicotine is present in bright and burley and in
11 oriental tobacco, so it's there. And when you
12 burn the cigarette, where does it go?

13 There were some people who said
14 obviously at the temperature of a cigarette butt
15 burning, nicotine must be destroyed. There were
16 others who said, well, maybe nicotine is
17 transferred. And a question that was posed to the
18 people at the Medical College had nothing to do
19 with the effects of nicotine, but rather, does
20 nicotine transfer from tobacco leaf or tobacco
21 cigarette into mainstream smoke, and that question
22 was answered.

23 So step B, which was plenty on the
24 plate of a good research team, question is, if
25 there is something in cigarette smoke that is

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1 demonstrated in a certain concentration, does that
2 material -- why does it get in humans, because the
3 alleged consequences would depend upon where it
4 got.

5 Q Does the research -- does the A-B-C or
6 X-Y-Z step research that you just described, does
7 it necessarily have to go in linear order; can
8 someone begin with step C and do valid research on
9 that before answering step B?

10 MR. RILEY: Let me object to the form
11 of the question.

12 THE DEPONENT: Sure. In my thinking,
13 which I don't regard as Bible truth and holy,
14 investigations of A, investigations in the
15 area of B, as I've characterized it,
16 investigations of C, D and E are all valid
17 provided someone doing A does not think that
18 they understand C or D or that someone who is
19 doing work at C and D say they are fully
20 knowledgeable of B.

21 They are interrelated, but the
22 interrelation must be studied, and you
23 cannot -- you cannot read the end of a book
24 and know how it started or what's in the
25 middle. And so to approach the research of A,

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1 B, C, D, each of these steps is very fine
2 providing you don't assume from any one step
3 that you understand all the other.

4 Is that too diffuse to answer what
5 you're asking?

6

7 BY MR. BAKER:

8 Q I think I understand. In 1964, the
9 surgeon general issued a report; correct?

10 A Right.

11 Q And do you recall --

12 A I don't remember the date of it, but I
13 do remember that there was a first surgeon
14 general's report.

15 Q Do you remember the general conclusion
16 of that report?

17 A Something to the effect that --

18 MR. RILEY: Let me just object to the
19 form of the question, but you may go ahead and
20 answer, Doctor.

21 THE DEPONENT: -- smoking cigarettes
22 may be hazardous to your health, and
23 ultimately this was posted on packs of
24 cigarettes.

25

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1 BY MR. BAKER:

2 Q And so in 1964, would it be fair to say
3 that there was concern about the effects of
4 cigarette smoking in the general public?

5 MR. RILEY: Object to the form of the
6 question.

7 THE DEPONENT: There is no doubt that
8 some people were concerned. Now, whether
9 these could be characterized as the general
10 public -- there was some concern, I guess, on
11 the part of the surgeon general to posit that
12 position.

13

14 BY MR. BAKER:

15 Q When you joined American Tobacco in
16 1965 and you were a member of the Department of
17 Research, was there a concern expressed within the
18 Department of Research about the effects or
19 alleged effects on cigarette smoking on the health
20 of humans?

21 A I have no way of knowing except by way
22 of judging, and I think that was an individual
23 thing. There was some members of the department
24 who were smokers, and there were some who, for
25 reasons of taste or whatever, didn't smoke, and I

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1 never got the impression that any of them didn't
2 smoke for reasons of fear of the consequences.

3 But as far as official position is
4 concerned, I don't remember that we actually sat
5 down and discussed this. If there is an
6 allegation in the public domain, I think you think
7 about it, but that doesn't mean that you
8 necessarily take a position one way or the other,
9 particularly a position from the standpoint of the
10 Research Department, which was the limit of my
11 knowledge of American Tobacco Company's position
12 on anything.

13 Q During your tenure at The American
14 Tobacco Company, were you involved or were you
15 aware of any in-house biological research on the
16 effects of cigarette smoking on living organisms?
17 And by "in-house," again, I mean physically at
18 American Tobacco conducted by American Tobacco
19 personnel.

20 A Unless it was conducted beyond my
21 knowledge, I am not aware of any research being
22 done in the Department of Research & Development
23 at Jeff Davis Highway and certainly nothing at the
24 Bermuda Hundred facility being constructed.

25 Q And you were the coordinator of

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1 biological research and therefore you would have
2 likely known of such research?

3 MR. RILEY: Objection.

4 THE DEPONENT: I would think that I
5 would be expected to be apprised of it.

6

7 BY MR. BAKER:

8 Q I just asked about research into the
9 effects of smoking or cigarettes --

10 A Now, if you're talking effects, are you
11 talking salubrious effects or adverse effects?

12 Q Adverse.

13 A There was research by way of consumer
14 satisfaction quality control that was done, and
15 from time to time I participated in smoking
16 panels, and that had to do with blinded use of,
17 let's say, several cigarettes, which do you prefer
18 or how would you characterize this cigarette.

19 I have no experience personally, but I
20 guess it's sort of like wine tasters in wineries
21 for quality control or new product development.
22 If you're going a certain way, you ask people who
23 are smokers, what do you think of this cigarette
24 as opposed to the one you smoke, or here are two
25 cigarettes and which do you prefer kind of thing.

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1 That was, to my knowledge, always double blind
2 study to determine smoker acceptance, and that is
3 a biological experiment, and that's in-house, and
4 that more relates to quality of product, quality
5 control and development of new product, in terms
6 of customer satisfaction or potential use for
7 customer satisfaction, not to do with
8 particularly, is it adverse to your health to do
9 that.

10 So that's in the strictest sense
11 in-house biological research with humans, but it's
12 not anything directed, to my knowledge, and in
13 which I participated, to my knowledge, other than
14 do you like this or do you not like this and what
15 is it about this that you like or don't like.

16 Q My questions for the moment when I use
17 the term "biological research," my meaning will be
18 the health effects.

19 A Okay. Thank you.

20 Q In 1965 as there was planning going on
21 for this in-house biological research lab, was
22 there discussion of hiring additional personnel to
23 fill positions?

24 A Yes.

25 Q How many?

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1 A I never once thought that I could do
2 everything or that I was particularly trained --
3 I'm not trained in inhalation toxicology, for
4 example; I'm not trained in skin painting.

5 Q How many persons were envisioned for
6 this planned in-house biological research
7 laboratory?

8 MR. RILEY: Object to the form of the
9 question.

10 THE DEPONENT: We looked -- I don't
11 remember exactly. If you have any access to
12 company records, I guess that there would have
13 been a report somewhere. I attended a
14 Federation meeting. Not to lecture you, this
15 is a meeting of 14,000 or 15,000 scientists,
16 used to be each year, generally in Chicago
17 because it was a place that could handle it,
18 of biological and medical scientists, mostly
19 biological, some medical, pharmacologists,
20 biochemists, chemists, organic chemists,
21 inorganic chemists, all sorts of various and
22 sundry researchers giving reports. They had
23 at those meetings a space for people who were
24 looking for jobs and people who were looking
25 to hire.

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1 I went to one of those meetings in
2 about that time, I don't remember exactly, to
3 help the Medical College locate someone who,
4 in my estimation, would have the credentials
5 to do research. The reason that I went,
6 Dr. Paul Larsen, you would think, would
7 ordinarily have gone, but we had established a
8 rapport, and he felt like I could judge
9 people, so I went and looked.

10 From my way of thinking, it wasn't at
11 that time decided that a particular candidate
12 would be at MCV employed by MCV or at Bermuda
13 Hundred employed by the Research Department.
14 These were open-ended issues and would depend
15 in part upon the qualifications, the desire of
16 the candidate, what kind of things would be
17 done. That was in the very broadest -- it was
18 a gunshot approach of looking for someone who
19 would be versatile enough that would work
20 under either circumstance and would be
21 qualified to do creditable work.

22 I did interview a handful of people,
23 and I remember part of the reason I went there
24 was to try to find a couple and specifically
25 to pick one that in my opinion could do

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1 creditable work, research work.

2

3 BY MR. BAKER:

4 Q And what specific fields or
5 specializations were you looking for people in?

6 A Well, people who had the basic
7 foundation in pharmacology, and though I taught
8 pharmacology, I was not a pharmacologist, so I was
9 looking for pharmacologist who had done animal
10 research. Pharmacology is not all animal research
11 and is not all human research, so I was looking
12 for someone who had training and experience as a
13 background in pharmacology to do what you might
14 call biological research. I think that the person
15 that looked the most attractive had a background
16 in some inhalation work as well as a background in
17 pharmacology.

18 Q Do you recall his name?

19 A It has been reminded to me. I do not
20 know his name. I have forgotten his name, but I
21 think I remember his name. I can't say that I
22 remember the name, but I --

23 Q Was it Dr. Trent Lewis?

24 A That sounds about right. As I said
25 earlier before we got started and got on the

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1 record, names are the first to go as you grow
2 older.

3 Q Aside from perhaps some of the
4 pharmacology background, were you looking for
5 other fields? Were you looking for a
6 biostatistician?

7 A Yes, you need such a person to evaluate
8 these days experimental results whether you're
9 talking about counting beans or doing research on
10 animal systems or plant systems. Statistics is a
11 very important field in terms of analyzing
12 results. Not all experimental biologists have all
13 of the tools of statistics of training to do
14 elegant analysis of their data.

15 I was made particularly aware of that
16 at Oak Ridge National Laboratory where a staff of
17 statisticians were regularly asked to look at data
18 to demonstrate correlations and the statistical
19 validity of data, whether things could be
20 explained on a random chance basis or whether they
21 could not be explained on a random chance basis.

22 At that time, though I had had a little
23 bit of exposure to statistics, it seemed to me
24 that biostatistics is limited to analysis
25 according to certain rules of the game that tell

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1 you whether something occurs on the basis of
2 chance, as likely as not, or the data that you
3 have, that you have two piles, red beans and green
4 beans, and there is no in between, they are
5 distinctly red beans and green beans. That is,
6 statistically, you're dealing with two sets of
7 data; this is not chance alone.

8 Q So perhaps --

9 A And some technicians, because someone
10 who might be regarded as a biostatistician and
11 someone who might be regarded as a senior
12 scientist cannot do it all; beside some chiefs,
13 you need some Indian chiefs to assist in the
14 conduct of work.

15 Q So at these planning stages, how many
16 persons did you contemplate having in the in-house
17 biological research lab?

18 MR. RILEY: Objection to the form.

19 THE DEPONENT: In terms of numbers, I
20 would say something like four to six; that
21 doesn't include the janitor.

22

23 BY MR. BAKER:

24 Q Always important. Was there discussion
25 of what the first year's research budget might be

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1 if the in-house biological research program were
2 to go forward?

3 A Maybe I should be shot, but I do not
4 remember a dollar figure ever being discussed. I
5 think that maybe there were some ranges in
6 proposing this of what might be an appropriate
7 salary for a technician and what a biostatistician
8 might demand as to what the traffic would bear,
9 what the marketplace dictated. But I don't regard
10 that as a budget; I regard that because such a
11 projection is sort of a backbone, and that has to
12 be flushed out. I may have made a proposal, and,
13 again, bear in mind, you're talking the mid-'60s
14 to the year 2000. Much water has gone under my
15 bridge in these 30-plus years.

16 It probably was that I presented to
17 Mr. Harlow an estimate since he was not involved
18 in the biological sphere, and if I did, I'm sure I
19 consulted with Dr. Larsen as to what he knew
20 people in a senior scientist category would ask as
21 direct compensation and what Dr. Larsen, as head
22 of the department, knew laboratory technicians
23 expected as a salary. But that's the start at
24 preparing a budget; that has to be flushed out.

25 I don't think -- I don't remember ever

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1 sitting down with Ed Harlow or anybody else and
2 saying, here is the budget. I don't think it ever
3 got that far. I think we had a backbone proposal,
4 here are some major items that you would have, and
5 since the -- if animals would be used, what kind
6 of animal, how many, that sort of thing. This
7 enters into a budget proposal, too, otherwise, you
8 have people sitting around with nothing to do.

9 I don't recall ever making any kind of
10 prediction about how many animals would be needed
11 of what species or how many Petri dishes or flasks
12 would be needed.

13 Q In these planning stages of the
14 proposed in-house biological research program at
15 American Tobacco, was it your intention to put
16 together a team of scientists and researchers who
17 were competent to investigate the biological
18 effects of tobacco?

19 A No.

20 MR. RILEY: Let me just object to the
21 form of the question.

22 THE DEPONENT: No. To elucidate my
23 feeling, we wanted to do B that I previously
24 talked about, that is, we wanted to see on a
25 selected basis where someone might say, well,

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1 compound something or another is bad for you,
2 well, if it's bad for you, can you reasonably
3 have assay systems?

4 Perhaps you know of the American
5 Tobacco Company sponsored research which I
6 coordinated which was conducted at the Medical
7 College on the inhalation of acetaldehyde.
8 Acetaldehyde is said to be present in the
9 vapor phase of mainstream cigarette smoke.

10 And if you want to know where some
11 elements of mainstream smoke that are
12 classified in the vapor phase, how they are
13 taken up, we looked at what might be done and
14 found out that acetaldehyde was a naturally
15 occurring chemical in the body that is in some
16 cases normally a metabolite and is not
17 particularly toxic. However, like water, too
18 much aldehyde is too much aldehyde, and that's
19 acetaldehyde.

20 So we set up a program at MCV, and
21 there was a new assistant professor at MCV in
22 this time frame in the mid-'60s. I didn't do
23 the work; I was sometimes a guinea pig for his
24 studies, and I kept -- I would keep track of
25 how he was doing, what he was doing and what

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1 kind of answers he was getting on the uptake
2 of acetaldehyde. That's B.

3 In the vernacular of old times, I think
4 that Pepsodent toothpaste people wanted to
5 know where the yellow went, so we have a
6 question under B, where does something go, not
7 what does it do, but where does it go. And
8 this was from the standpoint of the starting
9 point of the program, the objective to -- with
10 advice of a team that we were talking about
11 putting together, what substances would be
12 studied as to distribution, assimilation of
13 distribution, uptake.

14

15 BY MR. BAKER:

16 Q So there was a decision made to study
17 where the constituents of tobacco smoke go as
18 opposed to what effects the tobacco smoke might
19 have on the human; correct?

20 MR. RILEY: Objection to the form of
21 the question.

22 THE DEPONENT: I'm not -- I cannot say
23 that it got to such a posited stage as that.
24 For example, in the process of beginning to
25 put this program together, this doctor -- if

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1 you remind me it was Lewis, I think that's
2 right -- fatigued of the weight, he wanted to
3 change jobs and felt he had to move on. So he
4 didn't wait for us to make him an offer, so I
5 don't know that he was ever made a discreet
6 contract offer.

7 BY MR. BAKER:

8 Q Did you personally when you -- from
9 1965 to 1970 want to research what effects tobacco
10 had on humans?

11 MR. RILEY: Objection to the form of
12 the question.

13 THE DEPONENT: I agreed with
14 Ed Harlow's question, the need to answer what
15 goes where, not effect it had. Again, I keep
16 categorizing it as step B in the exploration
17 from identifying things in smoke to the
18 question of what effect they have on humans in
19 the middle. Backing off that animals --
20 backing off of that, the question, not effect,
21 but distribution, where are -- how are things
22 distributed, where do they have their, hate
23 the word, impact, because it's a federal word.

24

25 BY MR. BAKER:

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1 Q And this was Mr. Harlow's opinion that
2 the constituents -- where the constituents of
3 tobacco smoke go was a priority over what effects
4 tobacco smoke might have?

5 A I can't say that that was his priority.
6 You know, there's a North American Indian adage
7 that one man cannot walk in another brave's
8 moccasins. I can't say that I knew exactly what
9 Ed Harlow's motivations were, but in our
10 discussions, he emphasized, and I agreed with,
11 before anything else, we need to know if we can
12 demonstrate where things go before we begin to
13 look at what other consequences are of where they
14 go. I regarded that as logical progression, not
15 ignorance or rejection of allegations. It's
16 proceeding scientifically stepwise.

17 Q I'd like to show you a document,
18 Dr. Burke. And if we can go off the record for
19 three or four minutes so he can read that.

20 THE VIDEOGRAPHER: The time is
21 11:14 a.m., and we are now off the record.

22

23 (Recess.)

24

25 (Burke Exhibit No. 1 was marked.)

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1

2 THE VIDEOGRAPHER: This is tape
3 number 2, deposition of Dr. Arthur W. Burke,
4 Jr. The time is 11:27 a.m., and we're now
5 back on the record.

6

7 BY MR. BAKER:

8 Q Dr. Burke, I've just given you a
9 document that we've marked as Exhibit 1. It's
10 entitled, The Importance of Biological Research.

11 Have you ever seen this document before
12 I gave it to you today?

13 A No.

14 Q On page 4 of the document at the bottom
15 there's the initials ESH; do you recognize that
16 handwriting or those initials?

17 A No.

18 Q Do you know anybody with the initials
19 ESH?

20 A The only person I know is used to be
21 Edward Swain Harlow when he was living, but I
22 don't recognize this to be his initials.

23 Q On the first page in the second
24 paragraph --

25 MR. RILEY: Before you get into that,

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1 would you mind identifying the date of the
2 document for the record, please.

3 MR. BAKER: The document, to my
4 knowledge, does not have a date in it.

5 MR. RILEY: On the upper right-hand
6 corner.

7 MR. BAKER: Oh, yes, it does. The date
8 appears to be --

9 THE DEPONENT: Of what page? The first
10 page?

11 MR. BAKER: Perhaps you can read it
12 better than I.

13 MR. RILEY: Well, it looks like
14 February something, 1941, I believe.

15 THE DEPONENT: Okay. It's printed
16 over. I was ignoring that and Protected by
17 Minnesota Tobacco Litigation Protective Order.

18

19 BY MR. BAKER:

20 Q The statement in the second paragraph
21 that I've highlighted for you, "the medical
22 profession is interested in the science of tobacco
23 only as it relates to the effects of tobacco upon
24 the smoker's health," do you believe that's a fair
25 statement?

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1 MR. RILEY: Look, I'm going to object
2 to your use of this document to examine this
3 witness. This document was prepared, as far
4 as we can tell, roughly 25 years before he
5 even joined the company. I'm not sure
6 Dr. Burke was even at the University of
7 Virginia at the time this document was
8 prepared.

9 THE DEPONENT: In '41 I was beginning a
10 senior in high school.

11 MR. RILEY: He's never seen the
12 document before. There's no indication he was
13 involved in the preparation of it. We haven't
14 even identified really who the author of the
15 document is, why it was prepared, and I think
16 for you to sit here and ask this witness to
17 talk about this document which is 60 years old
18 is grossly unfair.

19 THE DEPONENT: If you wish to ask me
20 about something with that background --

21

22 BY MR. BAKER:

23 Q With that background as a general
24 proposition, you are a medical doctor, Dr. Burke,
25 do you believe that the statement, "the medical

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1 profession is interested in the science of tobacco
2 only as it relates to the effects of tobacco upon
3 the smoker's health," is that a fair statement?

4 MR. RILEY: Today? Then? 1960? What
5 are you talking about?

6 THE DEPONENT: Let me answer that by
7 saying, in 1941 I was in no position to have
8 any opinion about the medical profession. It
9 would not surprise me that that would be the
10 posture of the medical profession circle
11 whenever this was done, which was prior to my
12 acquaintanceship with any of the people named
13 in this document.

14 So I do not think -- I do not think
15 it -- that if you take every word literally,
16 "only as it relates to the effects of tobacco
17 upon the smoker's health," it -- for the
18 medical profession, what the medical
19 profession is interested in nowadays is
20 different from what it was 60 years ago, but
21 there's still the prevailing, hopefully, the
22 prevailing interest in human health. That's
23 hopefully what the medical profession is
24 about.

25 So I would think that they would be

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1 interested in the effects of tobacco upon a
2 smoker's health but not to the extent of only.
3 So if whoever wrote this had said as relates
4 to the effects of tobacco upon the smoker's
5 health, I would not take great objection to
6 that, because the medical profession is
7 interested in the health of patients and the
8 health of the population. Some segments of
9 the medical profession are interested in this
10 thing called epidemiology, the study --
11 statistical study of relationships.

12

13 BY MR. BAKER:

14 Q In early 1965 as you were planning the
15 in-house biological research lab at The American
16 Tobacco Company, was it your understanding that an
17 in-house biological research program was going to
18 go forward?

19 MR. RILEY: Object to the form of the
20 question. It's been asked --

21 THE DEPONENT: Well --

22 MR. RILEY: Excuse me, Doctor. It's
23 been asked and answered. I think this has
24 been discussed at length already, and I think
25 the doctor has already testified about this.

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1 THE DEPONENT: I do think that I've
2 gone on and on about that.

3

4 BY MR. BAKER:

5 Q So it was your understanding that the
6 in-house biological research program was going to
7 go forward?

8 MR. RILEY: Object.

9 THE DEPONENT: No.

10 MR. RILEY: Doctor, let me finish the
11 objection for the record, and then I will let
12 you answer the question. I object. It
13 mischaracterizes the record, and the question
14 has been asked and answered.

15 Doctor, you can answer the question
16 now.

17 THE DEPONENT: Well, since I've said so
18 much since we've talked about that along in
19 the morning, maybe if you wish, we should ask
20 the reporter to say what I -- read back what I
21 said.

22

23 BY MR. BAKER:

24 Q You posited that perhaps an in-house
25 biological research program at American facilities

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1 would go forward with either American personnel or
2 MCV personnel. In the first half of 1965, which
3 did you think was more likely; was it going to go
4 forward with American personnel or with MCV
5 personnel?

6 MR. RILEY: Objection, no foundation,
7 cause for speculation, mischaracterizes the
8 record. It's been asked and answered.

9 Go ahead, Doctor.

10 THE DEPONENT: Again, if the court
11 reporter would read back to refresh me about
12 what I said. May I comment about Exhibit 1?

13 MR. BAKER: There's no question on the
14 table.

15 MR. RILEY: He needs to ask a question.

16 MR. BAKER: I have to ask you a
17 question.

18

19 BY MR. BAKER:

20 Q Did American -- did the American
21 Tobacco in-house biological research lab ever
22 become an operational lab run by American Tobacco
23 Company personnel?

24 A No.

25 Q When was the decision made that it

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1 would not go forward with American Tobacco Company
2 personnel?

3 A I don't know. Again, this was a
4 gradual thing. I don't know when the, quote,
5 decision was made. It was -- I suppose that area
6 was broached; this possibility was raised with me.

7 An understanding of communication, one
8 has to allow the technique of the communicators.
9 Ed Harlow was a wonderful communicator who would
10 throw the ball way off of the plate to see if you
11 would swing at it, and then he would come in a
12 little closer, and finally when he lost patience
13 with you, he would hit you with the ball.

14 What I'm trying to say is, very often
15 discussions were in almost vague, general terms to
16 see what you were thinking and how you were
17 thinking, and then specifics would evolve, if
18 necessary. And I believe that this characterizes
19 the communication to me and, by the way, our
20 concurrence with the evolution to not doing
21 intramural biological research by employees of the
22 Research Department at American Tobacco.

23 Q Why did you think it was not
24 appropriate to do in-house biological research at
25 American by American employees?

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1 A Well, if you enumerate all of the
2 factors, it seemed to me that if one had a staff
3 of Nobel prize laureates doing this work under the
4 auspices of the Research Department at American
5 Tobacco Company, that there would be still those
6 that I viewed and would view as detractors of the
7 industry that would impute the validity of the
8 work.

9 I would say they wouldn't -- this is
10 all speculative, but my opinion was that it would
11 not have the weight and bearing of research that
12 was done independent of the American Tobacco
13 Company Research Department and even perhaps
14 independent of their facilities that sponsored
15 extramural research by way of a grant and aid
16 program having historically started at the Medical
17 College and having gone through such evolutions as
18 money to the Education Research Foundation of the
19 American Medical Association and the organization,
20 I think, that was called Council for Tobacco
21 Research USA. It's hard to deny the validity of
22 the independence of these organizations.

23 Q So --

24 A So it is, you spend a lot of money and
25 you do first-rate research, and what does it get

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1 you, it might get you the fact. But what is the
2 perception of the fact, how would people regard
3 this work. My regarding of their regard is that
4 this would be independent of how high quality and
5 how well done the research is. It would be the
6 perception of it that it would somehow have the
7 direction and control of interests within the
8 company rather than the interests of pursuit of
9 fact.

10 Q Would it be your opinion that if
11 American Tobacco had conducted in-house biological
12 research on tobacco and that research pointed up a
13 health danger to tobacco that the community
14 outside the industry would not view that research
15 as valid?

16 MR. RILEY: Object to the form of the
17 question, calls for speculation.

18 Go ahead, Doctor.

19 THE DEPONENT: That's sort of a double
20 negative. I think if work had been done which
21 could be interpreted as detrimental to the
22 product, I don't think the company would have
23 and could have afforded to conceal it. They
24 would have instead looked at, how do we make
25 use of this information. You have a lemon;

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1 how do you make lemonade.

2 Because so much of -- and I'm not an
3 industrialist, but so much like the
4 manufacturer of automobiles, a responsible
5 provider of a consumer product tunes that
6 product so that it is an acceptable thing, and
7 if something adverse had come up in a program
8 which didn't happen, it might even have been
9 blown out of proportion. That's all
10 speculation.

11 But there are all sorts of
12 possibilities there, and I think you would
13 have less of the speculative evaluation, the
14 perception and the use of things. So the idea
15 of supporting research through CTR seemed very
16 appropriate to me, and from my own vested
17 interest, I didn't think that that would
18 invalidate my position. It would shift my
19 emphasis in terms of being an in-house
20 consultant rather than an extramural
21 consultant.

22

23 BY MR. BAKER:

24 Q Were you surprised by what you termed
25 as evolution of the decision to not conduct

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1 in-house biological research by American Tobacco
2 personnel?

3 MR. RILEY: Object to the form of the
4 question.

5 THE DEPONENT: No, I don't think it was
6 a surprise to me.

7 BY MR. BAKER:

8 Q Were you disappointed?

9 A Well, yes and no. If you expend some
10 energies in the direction of doing something and
11 that doesn't happen, you are quite reasonably
12 disappointed that you didn't get to do that, but
13 you're challenged by the next stage of things,
14 what do you do instead. So I suppose I was a
15 little disappointed, but it was not, to me, a
16 catastrophic thing; it wasn't a very serious
17 thing. It just seemed logical, so you go with
18 what's logical.

19 Q And did you discuss this decision not
20 to pursue in-house biological research by American
21 Tobacco personnel with Dr. Larsen?

22 A No. As a matter of fact, I never felt
23 like I was a part of the decision-making process.

24 Q How was this decision related to you
25 not to do in-house biological research by American

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1 Tobacco Company personnel? Who related it to you;
2 do you recall?

3 MR. RILEY: I think it's asked and
4 answered.

5 THE DEPONENT: I think it was -- if
6 anybody, it was Mr. Harlow.

7 BY MR. BAKER:

8 Q Did he explain the reasons why?

9 A No.

10 Q Did he explain --

11 A We talked about it, though, he didn't
12 explain the reasons why from the standpoint of his
13 perception or the company's Research Department's
14 perspective on the matter. We talked about it in
15 general terms like, don't you think.

16 Q And what were some of those "don't you
17 think" that were discussed?

18 MR. RILEY: Asked and answered.

19 THE DEPONENT: We seemed to be on the
20 same track, Ed Harlow and me, that work done
21 in the Research Department by the Research
22 Department people could be subject to undue
23 scrutiny and skepticism, and for the amount of
24 money that you would spend, it would be better
25 spent supporting extramural programs, but it

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1 was obvious that the company could not be
2 accused of having skewed the data or
3 influenced the results.

4

5 BY MR. BAKER:

6 Q Was there a discussion -- was it
7 discussed between you and Mr. Harlow that this
8 might -- that the conduct of in-house biological
9 research by American Tobacco Company personnel
10 would present a problem for the American Tobacco
11 Company?

12 MR. RILEY: Objection.

13 THE DEPONENT: No, only in the sense of
14 you pay for something and then it's no good or
15 not used or not accepted, but in terms of
16 general public image, brand development, brand
17 acceptance, no.

18

19 BY MR. BAKER:

20 Q Was there a discussion that it might
21 cause legal difficulties for the American Tobacco
22 Company?

23 A Not with me directly.

24 Q To your knowledge, was it discussed
25 with Mr. Harlow directly?

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1 A I have no way of knowing that. I did
2 not see all of the memoranda and documentation
3 which may or may not have taken place in the
4 company.

5 Q What testing, to your knowledge, was
6 done at the American Tobacco Company to determine
7 whether or not its product was safe?

8 A I cannot recall any specific test or
9 procedure to show that the product was safe. I
10 think -- to speculate, I think that it was
11 generally regarded as an acceptable consumer
12 product. The emphasis was in terms of both smoker
13 acceptance and taste appeal, brand appeal.

14 Q Do you think a company that
15 manufactures and markets a product should test it
16 before putting it on the market to make sure it is
17 safe?

18 MR. RILEY: Object to the form of the
19 question, calls for a legal conclusion, vague,
20 no foundation.

21 THE DEPONENT: I can only analogize
22 that some major corporations involved in
23 consumer products have conducted
24 experimentation. I think notable is the
25 DuPont Company. At the time that I began to

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1 think about these things, they had a very
2 large and extensive department which they
3 regarded as their toxicology laboratory. But
4 there, again, that's a chemical company that
5 was producing chemicals. I would suppose some
6 of the their newer generation chemicals and
7 formulations were unknown as to safety, which
8 doesn't translate to cigarettes or tobacco
9 products which have been around since American
10 Indian times.

11

12 BY MR. BAKER:

13 Q Were you -- did you know what the
14 American Tobacco Company position was during your
15 tenure there as to whether or not cigarettes were
16 safe?

17 MR. RILEY: Objection.

18 THE DEPONENT: To my knowledge, safety
19 was never regarded as an issue in as much as
20 safety was not a word or concept that was
21 reviewed with me.

22

23 BY MR. BAKER:

24 Q Were you personally concerned about the
25 safety of the cigarettes that American Tobacco was

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1 manufacturing, marketing?

2 A Well, as I said earlier, on occasion, I
3 was asked to comparison smoke. I was never a good
4 panelist apparently. Maybe sometimes I didn't say
5 yes or no; I said maybe. But when I was asked to
6 smoke comparison cigarettes, if I had a concern of
7 what they may be doing to me or what this thing
8 is, I would not have participated. And at that
9 time, I would remind you that I was somewhere
10 between a half and one pack a day smoker, not that
11 half to one pack means anything except to
12 characterize me as being a fairly regular user of
13 the product.

14 Q When did you start smoking?

15 A I first started smoking in college at
16 the University of Virginia when I could afford the
17 hobby. Then I continued on occasionally smoking
18 into graduate school. Then it became a little
19 hard to make ends meet in graduate school. There
20 was a fellowship of sport -- this is details, but
21 when at St. Louis University in the early 1950s, I
22 had a scholarship, excuse me, that gave me \$1000 a
23 year, gave me \$1000 a year -- maybe one of these
24 things might be tasty -- gave me \$1000 a year,
25 although cigarettes were not all that expensive,

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1 but when it's a choice between a chocolate nut
2 sunday and a pack of cigarettes or something, I
3 think I took the chocolate nut sunday.

4 So I stopped smoking, and then when I
5 could afford it, I took up smoking again. So
6 there was a hiatus that I didn't smoke, and when I
7 was at Rhode Island Hospital I smoked and
8 continued to smoke through my association at MCV
9 and The American Tobacco Company. Excuse me.

10 Q Did you continue to smoke after leaving
11 The American Tobacco Company?

12 A Yes.

13 Q Until what time? Do you still smoke?

14 A No, I spend my money on chocolate and
15 my hobby.

16 Q When did you stop smoking?

17 A Oh, a year or so after -- I smoked some
18 during my residency, and I smoked some during the
19 residency occurring in radiation therapy occurring
20 after my tenure at American Tobacco Company, and
21 along the way, I just stopped, tapered off, lost
22 interest in smoking.

23 Q Roughly what year was this?

24 A I don't have any idea. It was after
25 1972 and before about 1975.

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1 Q And you stopped smoking because you
2 lost interest in it?

3 A Uh-huh, yes.

4 Q What brands did you smoke when you were
5 at The American Tobacco Company?

6 A I tried a number. I had from time to
7 time smoked Carltons, and I rather liked Carlton
8 cigarettes. If I had a brand allegiance, it was
9 Carlton.

10 Q And did you smoke Carlton until you
11 quit?

12 A Uh-huh, yes.

13 Q So following the decision of American
14 Tobacco Company not to pursue in-house biological
15 research conducted by American Tobacco Company
16 personnel, at that point in time what were your
17 job responsibilities?

18 A To continue to be aware of research, to
19 call to Mr. Harlow's attention things that I
20 thought were interesting results. At that time a
21 scientist whose name has not come up,
22 Herbert McKennis, was continuing work on nicotine
23 and the nicotine metabolites, so I would
24 occasionally meet with Herb and find out what he
25 was doing or what recently he found and would

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1 occasionally, while he was active, talked to
2 Paul Larsen about what he had read.

3 Q When you said aware of the research,
4 are you talking about biological research and the
5 health effects of tobacco or also just -- please
6 explain, I suppose.

7 A Well, I was not the only channel of
8 information to the Research Department.

9 Dr. Paul Larsen spent a long time and his efforts
10 with Harvey Hague resulted in publication of a
11 voluminous treatise of abstracts of smoking and
12 health literature, and Paul continued that even
13 after the book was published and updated that. He
14 would sometimes mention, you might want to read
15 the paper to me or to Ed Harlow.

16 The work of McKennis in terms of
17 nicotine metabolism and metabolites, I never
18 regarded as being in response to or answering or
19 asking any questions about smoking and health.
20 Herb McKennis was interested essentially in things
21 that we could characterize in my A-B-C treatment
22 as in the category of B, that is, we have
23 something here and where does it go, where does it
24 go in experiment animals and what do biosystems do
25 with the substance nicotine.

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1 Q If studies concerning the health risks
2 of smoking were published, did you review those
3 studies in your job responsibilities?

4 MR. RILEY: Object to the form of the
5 question, overly broad, vague, ambiguous; that
6 will do.

7 THE DEPONENT: I did not have the
8 conceit to think that I could oust
9 Paul Larsen's great effort. Occasionally Paul
10 would put under my nose something that he
11 abstracted to find out what I thought.

12 One of the things that people lay to
13 research, particularly biomedical research,
14 don't recognize is that everything is not in
15 the written word and the written word is not
16 everything. And that sounds real broad and
17 philosophical, but things that get into print
18 ain't necessarily so on the one hand.

19 This is why under the scientific method
20 or in scientific pursuit what you would hope
21 would be that wonderful thing, truth, things
22 need to be replicated, things need to be done
23 several times independently, because you have
24 the human factor. However saintly the human,
25 that is the human factor and the tendency of

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1 liking what you're doing and liking what
2 you're saying.

3 So I did read, not everything. I can't
4 give you a percentage of what I think was out
5 there that I read and tried to digest, but if
6 you tried to read a scientific article first
7 for content and then to critique that article
8 from your perspective as a reader, or as a
9 consumer, that is, it takes a very long time.
10 Reading an article is just one step in the
11 process of digesting what's there and trying
12 to arrive at a decision for one's own person
13 the relevance of what's there, meaning the
14 significance of what's there, the printed
15 word.

16

17 BY MR. BAKER:

18 Q During your tenure at The American
19 Tobacco Company, was the Research Department and
20 later the Research & Development Department
21 charged with the responsibility of keeping abreast
22 of the knowledge of the health dangers of tobacco?

23 A I have no way of knowing that except to
24 recognize that The American Tobacco Company had
25 responded to Dr. Larsen's efforts, and

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1 Dr. Larsen's efforts were to compend the printed
2 word about tobacco and health matters as relates
3 to tobacco.

4 Q Did Dr. Larsen, to your knowledge, have
5 meetings with the management of The American
6 Tobacco Company to discuss the health effects of
7 tobacco?

8 MR. RILEY: Objection to the form.

9 What do you mean by management?

10

11 BY MR. BAKER:

12 Q Did he have meetings with either
13 Mr. Heiman or Mr. Walker? First of all, who is
14 Mr. Heiman, Robert Heiman.

15 A I met Mr. Heiman once very, very
16 briefly on the occasion of his visit to the
17 facilities at Bermuda Hundred. At that time he
18 was in the company of Mr. Walker, Barney Walker,
19 who was then CEO chairman of American Tobacco
20 Company. And at that time I suppose Mr. Heiman
21 was president; I'm not sure. I think at that time
22 he was president when I met him, and that was -- I
23 can't pair the date, but it was somewhere
24 around -- between '66 and '68, something like
25 that. I don't know exactly when it was.

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1 The company records should show that
2 this was, as Mr. Heiman touted, the first meeting
3 of the marketing division outside of the big
4 teepee, which was Park Avenue, and the meeting of
5 marketing was to show the marketing people the
6 facility, give them a tour of the facility.

7 Q So back to my earlier --

8 A Mr. Heiman, I guess, at one time or
9 another in my acquaintanceship was president of
10 American Tobacco and at Barney Walker's demise, I
11 got the impression and this is probably after I
12 left American Tobacco, became CEO and the big
13 chief under the teepee.

14 Q So, to your knowledge, did Mr. -- or
15 Dr. Larsen have meetings or discussions or
16 communications with either Mr. Heiman or
17 Mr. Walker concerning the health effects?

18 A If they met, I have no direct knowledge
19 of that.

20 Q Did Mr. Harlow, to your knowledge, have
21 such meetings with Mr. Walker and Mr. Heiman to
22 discuss the health effects of tobacco?

23 A In view of the chain of command after
24 Bill Harlan's death, Mr. Harlow became, I think,
25 first-acting managing director, then managing

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1 director of R & D. He certainly would have had
2 occasion to talk to Mr. Heiman because Mr. Heiman
3 was president, and Ed Harlow was not a vice
4 president, but he was heading a major division of
5 the company, so I'm sure that they met and talked,
6 but I know nothing of the subjects or the
7 occasions of which they met.

8 Q And did you ever have such meetings
9 with Mr. Walker or Mr. Heiman to discuss the
10 health effects of tobacco use?

11 A I believe I said a couple of paragraphs
12 ago that the only occasion that I was in the
13 presence of Bob Heiman or Barney Walker,
14 Mr. Heiman and Mr. Walker, was the occasion that
15 the marketing division came to the Bermuda Hundred
16 facility, and they made presentations to the
17 marketing division at that time, and some of us in
18 R & D were introduced as a courtesy to us to the
19 big cheese, and that was the extent of it.

20 Q Do you know --

21 A The contact was probably less than a
22 handshake, although I may have shaken hands with
23 Mr. Walker and at a distance of 10 to 100 feet and
24 there was no discussion.

25 Q Do you know where, if anywhere,

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1 Mr. Heiman or Mr. Walker got their information
2 concerning the health effects, if any, of tobacco
3 use?

4 MR. RILEY: Objection, no foundation,
5 calls for speculation.

6 THE DEPONENT: I would speculate they
7 were on the top of the pile and they would
8 have had their channels and -- I just don't
9 know. They never asked me, and that's not
10 sour grapes. I never had occasion; as I said,
11 I only saw the man and was introduced to them.

12

13 BY MR. BAKER:

14 Q How many M.D.s were there in the
15 Research Department and later the R & D Department
16 during your tenure at American Tobacco?

17 A One.

18 Q And that was you?

19 A That's right. And there have been, to
20 my knowledge, none before and none after.

21 Q Given your experience and background,
22 do you think you would have been qualified to make
23 a determination based upon the literature of the
24 health effects of tobacco use?

25 A No.

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1 MR. RILEY: Object to the form of the
2 question.

3 THE DEPONENT: I don't think -- I don't
4 presume that. At that time I more viewed
5 myself as a research experimental biologist
6 who happened to have a medical training.

7 BY MR. BAKER:

8 Q Following from 1965 until the time you
9 left The American Tobacco Company, The American
10 Tobacco Company conducted contract research; is
11 that correct?

12 A I was aware of some.

13 Q And what were some of these entities
14 with whom you contracted to do biological
15 research?

16 A I'm becoming weary. Would you either
17 ask me that again or rephrase that?

18 MR. RILEY: If you would like to take a
19 break, too, Doctor, we can do that.

20 THE DEPONENT: No, let's plow on.

21 MR. RILEY: If you're tired --

22 THE DEPONENT: I'm not that tired.

23 MR. BAKER: I'll go for about 15 more
24 minutes, and then we'll break.

25

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1 BY MR. BAKER:

2 Q Did The American Tobacco Company do
3 contract biological research through the Woodard
4 Research Laboratory?

5 A Yes.

6 Q And what was the nature of that
7 research?

8 A What I can honestly say I remember was
9 a visit to Woodard Laboratories sometime in that
10 interval, that era of time, met with Jeff Woodard
11 and met with a couple of his senior personnel, and
12 I believe maybe Dr. McKennis went along.
13 Dr. McKennis was vaguely acquainted with
14 Jeff Woodard as a scientist. I believe Mr. Harlow
15 went along. There were three or four of us in the
16 car that went up, and there was a discussion and
17 some work published out of a sponsored/supported
18 mouse skin painting.

19 Q And what were the results of that mouse
20 skin painting?

21 A I could not say that I really remember
22 the results of that.

23 Q Were you involved in any contract
24 research concerning chemosol at Hazelton
25 Laboratories?

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1 A I can't remember whether at any time I
2 talked to anybody visiting Hazelton Laboratories,
3 but I remember that emphasis was shifted from
4 Hazelton to Woodard Laboratories in terms of
5 looking at a contract to do some biological work
6 and testing. Give me another name for chemosol.

7 Q Chemosol is chemosol; I'm sorry.

8 Changing gears a bit, was there anyone
9 in the Research Department or later the R & D
10 Department during your tenure at American that was
11 competent, in your view, to determine whether or
12 not based upon the literature smoking was
13 hazardous?

14 MR. RILEY: Object to the form of the
15 question.

16 THE DEPONENT: I think the people that
17 I knew were competent in specific areas, and
18 Paul Larsen with his vast assemblage of
19 published information, I think, was only
20 qualified to make assessments of what he had
21 read but not to extrapolate that to pose
22 himself as any authority to say this is so and
23 this is not so or this is a concern or not a
24 concern.

25

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1 BY MR. BAKER:

2 Q Was the atmosphere within The American
3 Tobacco Company Research Department open; did you
4 feel free to have conversations about any
5 scientific matter before you?

6 MR. RILEY: Object to the form of the
7 question, calls for speculation, vague
8 ambiguous, overly broad.

9 You can do your best to answer it,
10 Doctor.

11 THE DEPONENT: Say it, please, once
12 again.

13

14 BY MR. BAKER:

15 Q Was the atmosphere within the Research
16 & Development Department during your tenure at The
17 American Tobacco Company very open and collegial?

18 A Oh, yes, with certain exceptions.

19 Q And those exceptions were?

20 A There were a very few people who had
21 access to certain formulations that were
22 proprietary to certain brands, and I respected
23 that. And though it was pointed out to me, you
24 are welcome to go look, I always felt like I
25 didn't need to go look to see what flavor

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1 additives were in Pall Mall, for example.

2 Those were fairly closely guarded and
3 were regarded as proprietary flavorings as much as
4 what percentage of bright and burley went into a
5 particular brand. This was adjusted, and from
6 time to time obviously which year crop was pulled
7 out of storage to come up with a Lucky Strike
8 which was a Lucky Strike which was a Lucky Strike
9 year after year.

10 I was told that I could look if I
11 wished, but I never felt motivated to do that;
12 that was in a proprietary area which I respected
13 was very carefully guarded. So there were some
14 things that you were not told not to ask about but
15 you understood were off the table for water cooler
16 discussion or coffee rounds. But for the most
17 part, the atmosphere was very collegial.

18 Q Were there any restrictions on you
19 commenting or discussing outside the company your
20 views on the biological effects, if any, of
21 tobacco?

22 A They were never expressed to me.

23 Q Were there any implicit restrictions
24 that you felt?

25 A I can't think so. In their getting

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1 acquainted with me, they had to know my basic
2 nature.

3 Q You mentioned Dr. Larsen and MCV. MCV
4 and the personnel there was one conduit that
5 channeled information regarding smoking and health
6 to the Research & Development Department; is that
7 correct?

8 A Well, the Department of Pharmacology
9 first headed by Harvey Hague and then by his
10 successor, Paul Larsen, certainly would from time
11 to time call people at The American Tobacco
12 Company to focus their attention on things that
13 they had seen in the literature or they might be
14 aware of some research going on that they might
15 accidentally be privileged to know about from
16 their colleagues not at MCV that was not regarded
17 as secret that can be passed on. But it's
18 presumptive on my part to say that that was a
19 conduit or a channel. I just knew that these
20 people were friends, and you used the word
21 "collegial." Collegiality extended to faculty at
22 MCV.

23 Q Did information regarding the health
24 effects of smoking -- did you receive information
25 from management, Mr. Heiman's office, Mr. Walker's

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1 office, the New York office, concerning the health
2 effects of smoking?

3 MR. RILEY: Did he personally?

4

5 BY MR. BAKER:

6 Q Did you or anyone in the Research
7 Department, to your knowledge.

8 MR. RILEY: Receive health information
9 from --

10 THE DEPONENT: I can only say for my
11 own purpose.

12 MR. RILEY: Doctor, I'm going to make a
13 clarification.

14 THE DEPONENT: Sure.

15 MR. RILEY: You're asking whether the
16 Research Department received health
17 information from the executive offices?

18 MR. BAKER: Executive offices in
19 New York.

20 THE DEPONENT: I have no basis for
21 comment. As I said, I would assume that a lot
22 of -- I won't call it data, but a lot of
23 things were documented by way of memoranda and
24 a lot of telephone conversations and things
25 like that occurred that I had no cause nor

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1 reason to know about. Again, my contact with
2 Barney Walker and Robert Heiman, Bob Heiman,
3 were as I stated: I saw the two men once, and
4 I think I may have shaken hands with
5 Mr. Heiman -- Mr. Walker.

6

7 BY MR. BAKER:

8 Q Did information concerning the health
9 effects of tobacco come to you from The American
10 Tobacco Legal Department?

11 A No.

12 Q Did it come from American Tobacco
13 outside counsel?

14 A No, in the sense that I was not
15 specifically instructed. I had -- to elaborate --

16 MR. RILEY: Doctor, just so you
17 understand, you should not disclose the
18 content of any communications you may have had
19 with the company's lawyers at the time.

20 THE DEPONENT: Okay.

21 MR. RILEY: And he's asking you whether
22 you received information about health from the
23 company Legal Department, as I understand the
24 question.

25 MR. BAKER: That's the extent of my

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1 question.

2 THE DEPONENT: Okay, no.

3

4 BY MR. BAKER:

5 Q In 1971, you left The American Tobacco
6 Company; correct?

7 A Yes.

8 Q Why was that?

9 A That's a hard thing to answer. I guess
10 it was that the emphasis or the possible emphasis
11 of an intramural program was shifted, and as I
12 said before, I was not consulted, but I concurred
13 with the reasons for -- to extramural support of
14 biomedical research of tobacco products. So I may
15 have been regarded as a perfunctory who was no
16 longer needed in the operation.

17 Q And so you made the decision on your
18 own to leave; is that correct?

19 A I was allowed to make that decision. I
20 was asked if I would like to transfer back to the
21 Medical College and continue in the consulting
22 capacity but move back to the Medical College and
23 perhaps a faculty position.

24 Q You were asked by whom?

25 A I think maybe Mr. Harlow asked me if I

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1 would want to consider that.

2 Q When you did leave --

3 A Again, I apologize that after all these
4 years and so many other activities in my life and
5 focus, a lot of this is lost. Things that were
6 said and who said what are hard to bring back.

7 Q When you left American Tobacco in 1971,
8 did you in fact do any consultancy work for The
9 American Tobacco Company?

10 A No. I decided that, first of all, a
11 break was in order, some R & R and to refocus and
12 maybe change career direction all together, which
13 I ultimately did by going into radiation therapy.

14 Q Did you keep in contact with Mr. Harlow
15 and other people at American Tobacco after you
16 left?

17 A I occasionally saw Ed Harlow. I can't
18 remember the occasions of the occasional, and as
19 the years went by, the Research Department would
20 have retirement parties for various people that I
21 have known in the interval that I was with them,
22 and I would be invited as a former R & D person
23 and as a friend of the retiree, would I like to
24 come, and I sometimes did, sometimes didn't.

25 I maintained contact with people like

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1 Dick Irby, who I liked very much who was a chemist
2 having nothing to do with the biological program
3 at all. He was there in R & D. As fate would
4 have it, years ago he was found to have
5 malignancy. Because I had been on a picnic a
6 couple of times with he and his wife, his wife
7 wanted to know if I knew anything about this or
8 that disease or this or that test, and as a
9 nonmedical consultant, I dealt with that on a
10 friendly basis.

11 So, yes, I had off-and-on, casual,
12 occasional contact with people who either were at
13 American Research & Development or who had been.

14 Q I want to make sure I understand. Your
15 departure from American was amicable; is that
16 correct?

17 A Oh, certainly.

18 Q Over the years, have you followed
19 American Tobacco's pronouncements regarding the
20 health dangers of smoking after you left the
21 company?

22 MR. RILEY: Object to the form of the
23 question, no foundation, vague, over broad.

24 THE DEPONENT: No.

25

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1 BY MR. BAKER:

2 Q So you made a career change after
3 leaving American and you entered the field of
4 radiation therapy?

5 A Yes. In the vernacular, it was cold
6 turkey.

7 Q In radiation therapy, you were treating
8 cancer patients; is that correct?

9 A Almost but not completely exclusively.
10 We occasionally treated benign conditions where
11 appropriate, but in modern practice, radiation
12 therapy is part of the management of patients with
13 malignancy.

14 Q What type of cancers primarily were you
15 involved in treating?

16 A I would say, without trying to rattle
17 them off, all but the rarest of rare. At a place
18 like the Medical College, you see an enormous
19 spectrum of diseases including the rare. I
20 treated kids, and I treated the elderly, and I
21 treated people in mainstream mid-life, and I
22 treated many, many different kinds of malignancy.

23 Q Did you treat patients with lung
24 cancer?

25 A Yes.

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1 Q In evaluating their treatment, did you
2 determine what had caused their lung cancer?

3 A No.

4 Q Did you have a hypothesis on what had
5 caused their lung cancer?

6 A No.

7 Q You were not interested in what had
8 caused their lung cancer?

9 A My focus was on helping the patient
10 deal with their disease and to try to help them by
11 treating their disease, and I never regarded the
12 role of radiation therapy as panacea or absolute
13 cure. In many cases, it is not; in some cases,
14 happily it is.

15 At MCV I was involved in several
16 protocols of treating lung cancer patients, most
17 notable in connection with the medical oncology
18 team at MCV, treating patients with radiation
19 therapy and chemotherapy in several combinations
20 that were being evaluated in terms of timing and
21 dosing of chemotherapy and radiation therapy.

22 Q In dealing and treating patients for
23 disease, though, is it your opinion that knowing
24 the cause is useful?

25 MR. RILEY: Let me just object to the

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1 form of the question.

2 THE DEPONENT: In the sense of my
3 pursuit of a career in radiation therapy, it
4 would be a passing interest. But I operated
5 on the philosophy -- and this may sound sort
6 of homespun or homely or something. Once a
7 patient has been devastated, and that's the
8 first reaction of being told that they may
9 have a terminal illness, whatever the illness,
10 they have a lot of feelings of guilt about
11 themselves and life and all that sort of
12 thing. And patients who have a diagnosis of
13 cancer undergo some changes of
14 self-protection, otherwise, they'd probably
15 crack up, and most of them don't come to
16 reckon with their problem. I never thought
17 once of adding to those problems by discussion
18 with them about cause.

19 If a patient asked me, I would tell
20 them what I had read or what I had heard that
21 said, but I almost never gave an opinion about
22 that and certainly only on -- in the event
23 that it was raised by a question that was
24 asked to me, why do you think I got this.
25 Most of them were interested in what can you

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1 do for me, and I concentrated on what I
2 thought I could help them with.

3

4 BY MR. BAKER:

5 Q In response to the question when it
6 arose what caused this, did you ever answer
7 cigarettes?

8 A No.

9 Q Did you ever advise a patient that you
10 were treating to stop smoking?

11 A No. I think on occasion when they had
12 a lot of respiratory symptoms like a lot of cough
13 and the like, I would suggest, well, maybe if you
14 limit the number of cigarettes you smoke, you may
15 notice a change in your cough.

16 But I can say -- quite honestly here
17 say, many of my colleagues were up and down about
18 it and would lecture patients about cigarette
19 smoking, and I don't know that the patients
20 benefited. Some of the patients would come to me
21 and say that they wished that Dr. So-and-so would
22 stop riding their case and just treat them and not
23 abuse them with why they had something.

24 So early on, I regarded my role as
25 sticking to what I was supposed to be doing and

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1 try to be supportive of the patient and not
2 encourage them to think in recrimination of what
3 they did or what they might have done, what might
4 be if kind of thing.

5 Q Just to be perfectly clear, when I was
6 referring to cancer patients, I was referring to
7 lung cancer patients, and that wouldn't change
8 your answer at all, would it?

9 A My answer was in the general and in the
10 specific.

11 Q At this point in time when you were
12 doing radiation therapy from 1972 forward --

13 A Training '72 and actually '75 after
14 achieving --

15 Q At that point in time --

16 A -- board status.

17 Q -- in '72, did you agree that smoking
18 was a cause of cancer?

19 A I came to believe that smoking may be a
20 cause.

21 Q In that time frame?

22 A About then, yes.

23 MR. BAKER: Why don't we break for
24 lunch now. Is that good?

25 MR. RILEY: Sure.

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1 THE VIDEOGRAPHER: The time is
2 12:29 p.m., and we are now off the record.

3
4 (Recess.)
5

6 THE VIDEOGRAPHER: The time is
7 1:36 p.m., and we are now back on the record.

8
9 BY MR. BAKER:

10 Q Welcome back, Dr. Burke.

11 A Thank you.

12 Q During lunch, did you have any
13 discussions concerning the substance of content of
14 your testimony?

15 A Yes, I did in the sense of an overview
16 and becoming a little tired, if not an old man,
17 and I'm not protesting as an old man, if I thought
18 these gentleman had any way that would not be
19 offensive so that we could slow things down -- not
20 slow things down, but shorten things, shorten, and
21 I think the three of us if only I could stay to
22 the point and not elaborate too much.

23 Q Were there specific --

24 A Simply the facts and not elaborate
25 about who I used to know -- whom I used to know.

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1 Q Were there specific instances in your
2 testimony that they commented upon?

3 A No.

4 Q Are you represented here by a lawyer?

5 A No.

6 Q Did American Tobacco during your tenure
7 there investigate the dangers, if any, of specific
8 brands of cigarettes that it marketed?

9 A No.

10 Q Did American Tobacco during your tenure
11 there voluntarily inform its customer of the
12 dangers, if any, of its specific brands of
13 cigarettes?

14 MR. RILEY: Object to the form of the
15 question.

16 THE DEPONENT: Not to my knowledge.

17

18 BY MR. BAKER:

19 Q During your tenure at The American
20 Tobacco Company, did American Tobacco Company have
21 ample funds at its disposal to conduct research
22 into whether or not their products were dangerous
23 in your opinion?

24 MR. RILEY: Object to the form of the
25 question, no foundation. There's no

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1 suggestion that he knows anything about the
2 company's overall finance. It's requiring him
3 to speculate, and I object to the form of the
4 he question.

5 THE DEPONENT: I don't know of any
6 limitations, restrictions or --

7 BY MR. BAKER:

8 Q During your tenure there, did American
9 Tobacco have qualified competent researchers to
10 devise, conduct and evaluate smoking and health
11 related research?

12 A Not to my knowledge.

13 Q During your tenure there, did American
14 Tobacco Company make any effort to hire competent
15 personnel to devise, conduct or evaluate smoking
16 and health related research?

17 MR. RILEY: Do you mean in-house, or
18 did they have access to such consultants from
19 the outside?

20 MR. BAKER: Within the company.

21 THE DEPONENT: No. As I said this
22 morning, I think that most of that was in
23 contact with Paul Larsen, who did as well as
24 anyone could in keeping up with the biomedical
25 literature referencing smoking and health and

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1 tobacco.

2

3 BY MR. BAKER:

4 Q So is it your understanding that
5 Dr. Paul Larsen was the primary resource to which
6 The American Tobacco Company turned for
7 information regarding smoking and health matters?

8 MR. RILEY: To the extent -- let me
9 object to the form of the question, no
10 foundation.

11 To the extent you can answer his
12 question, Doctor, go ahead.

13 THE DEPONENT: I can only surmise that
14 since Paul was doing what he was doing and the
15 company was helping fund that through grant to
16 the Medical College that they would ask him
17 something, but I can't recall a single
18 instance in my presence that there were
19 specific issues or specific comments.

20 As I had said earlier, there were
21 occasions that Paul Larsen would call to the
22 attention of Ed Harlow, did you notice thus
23 and so or tell them something about an article
24 that he had seen.

25

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1 BY MR. BAKER:

2 Q Are there any specific articles that
3 come to mind that Dr. Larsen may have been
4 bringing to the attention of Mr. Harlow?

5 A No. I regarded it as not quite passing
6 fancy, but it was subject of casual conversation.
7 It was not a serious, now you better do this or
8 you better do that.

9 Q And Dr. Larsen was in the Department of
10 Pharmacology at the Medical College of Virginia;
11 correct?

12 A Yes. He was at the time of my
13 acquaintanceship with him chairman of that
14 department.

15 Q Was it a large department?

16 MR. RILEY: Object to the form.

17 THE DEPONENT: I guess at one time or
18 another I met everybody in the department. It
19 was in terms of total personnel not a gigantic
20 department.

21

22 BY MR. BAKER:

23 Q Roughly how many professors were there,
24 full assistant associates?

25 A Paul was a full professor, and I think

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1 Joe Borzelleca was a full professor, and Andy, oh,
2 God, Andy, I can't recall his last name, a
3 wonderful old gentleman, had sort of a meritorious
4 professorship, and there were several assistant
5 professors including me.

6 Q So roughly how many?

7 A Oh, half a dozen or more on the
8 professorial staff, and then each of these
9 staffers had some ancillary personnel reporting to
10 them.

11 Q Did the Department of Pharmacology at
12 the Medical College do a lot of contract research
13 for companies?

14 MR. RILEY: Object to the form of the
15 question, no foundation.

16 THE DEPONENT: I think that
17 Dr. Borzelleca was doing some contract work,
18 and I knew that Andy Ambrose, ah, that
19 Dr. Ambrose had a contract to do some
20 pesticide work, the potential toxicity of
21 certain pesticides in rodents.

22

23 BY MR. BAKER:

24 Q Did the Medical College of Virginia
25 Department of Pharmacology receive a substantial

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1 amount of its grants from grants and contract
2 research from The American Tobacco Company?

3 MR. RILEY: Object to the form of the
4 question, also object to no foundation.

5 If you have a basis for answering the
6 question, Doctor, try and do so.

7 THE DEPONENT: I have no basis of
8 knowledge of what else, and it may sound
9 strange, but I never concerned myself with how
10 much money a particular person were being
11 given to pursue a particular grant.

12 I did look, I guess, somewhat
13 intelligently at how much money was spent in
14 the early '30s and on, but the Medical College
15 then Department of Biochemistry and
16 Pharmacology, there are now two departments
17 that were once one department, and for that
18 time frame, thousands and thousands of dollars
19 flowed from American Tobacco Company for
20 supporting certain research fellows and for
21 supporting certain grants, which I thought
22 very remarkable in the context of that era of
23 the middle '30s.

24 But as to current in the '60s, I
25 couldn't even tell you how much my grant was

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1 for to do the carbon monoxide work. It was
2 adequate for what we needed. The grant met
3 our needs, and I didn't concern myself with
4 dollar matters.

5

6

7 BY MR. BAKER:

8 Q During your tenure there, in your
9 opinion, had American Tobacco wanted to, could it
10 have provided the laboratory facilities to conduct
11 investigations into smoking and health matters?

12 MR. RILEY: Object to the form of the
13 question, calls for speculation. You haven't
14 even begun to identify the research you're
15 talking about. You haven't begun to identify
16 the facilities that would be needed. The
17 question calls for speculation, and I object.

18 THE DEPONENT: If I may speculate, I
19 was impressed when I became aware of the
20 activities in the Pharmacology Department,
21 Dr. Stepka's activities, on the roof of the
22 building; American helped to build a research
23 greenhouse and in it a neutral culture
24 facility, and Dr. Stepka's staff, I think, was
25 in part supported.

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1 That represented, I thought, an
2 impressive can-do at MCV. But as to anything
3 else, I have no idea of the dollar value of
4 that. It was an impressive and
5 state-of-the-art facility, and
6 state-of-the-art facilities in any era don't
7 come easy or cheap.

8

9 BY MR. BAKER:

10 Q Dr. Burke, have you ever heard the term
11 "safer cigarette"?

12 A Yes, I have.

13 Q And what does that term mean to you?

14 A I don't know what a safer cigarette
15 means. In the context of when I first heard it, I
16 just wondered why people were talking about a
17 safer cigarette except in the context of maybe a
18 cigarette that had less of this or that by some
19 people were thought to be a safer cigarette.

20 I would guess a safer cigarette would
21 be one that didn't burn which wouldn't cause
22 people to fall asleep and burn down their beds or
23 something like that, but as to smoking and health
24 issues, I thought it was a strange thing to say,
25 but I was aware that people were talking about a

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1 safer cigarette.

2 Q Why did you think it was a strange
3 thing to say?

4 A Well, I just didn't know on what basis
5 they were saying safer except, I guess, the
6 implication was that there was less smoke from a
7 safer cigarette. And I don't know, but it may be
8 that someone at some time or another made the
9 comment to me that if you have a delivery device
10 which doesn't smoke, it's not a cigarette. And I
11 don't know whether that's safer or not safer, but
12 there was conversation.

13 I guess some of the tobacco companies,
14 and I don't know which, were talking about trying
15 to make a safer cigarette, but I never heard that
16 phrase or that direction in The American Tobacco
17 Company.

18 Q Would it be fair to say that a safer
19 cigarette would be a cigarette that has less
20 biological activity on the body?

21 MR. RILEY: Object to the form of the
22 question. What biologic activity are you
23 talking about? No foundation, calls for
24 speculation.

25

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1 BY MR. BAKER:

2 Q Let me rephrase. Are there qualities
3 that would make for a safer cigarette?

4 MR. RILEY: Same objection.

5 THE DEPONENT: Like I said, if there
6 were a cigarette that didn't have fire
7 associated, maybe it would be safer from the
8 standpoint in the sense that you may fall
9 asleep and --

10

11 BY MR. BAKER:

12 Q Putting aside fire safe cigarettes
13 vis-a-vis personal health, a person's health aside
14 from being burned by a cigarette, are there
15 qualities that would make for a safer cigarette?

16 A I don't know of them.

17 Q Would less tar delivery make for a
18 safer cigarette?

19 MR. RILEY: Object to the form of the
20 question.

21 THE DEPONENT: I don't know that.

22

23 BY MR. BAKER:

24 Q Would less nicotine delivery make for a
25 safer cigarette?

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1 MR. RILEY: Same objection.

2 THE DEPONENT: I don't know that. I
3 could not in clear conscience say this or that
4 constituent of mainstream smoke relates to
5 safety or hazard of a cigarette.

6

7 BY MR. BAKER:

8 Q So you know of no constituents in
9 mainstream smoke that are hazardous in your view?

10 A I have heard allegations. People
11 variously claim that benzoapyrene -- there was at
12 one time a great flap about arsonic being used in
13 agricultural practices and that there might be
14 arsonic in tobacco and arsonic was a poison; that
15 it would be safer not to have arsonic. Those
16 arguments like the wind came and went in terms of
17 a flare-up and interest in them, and then they
18 didn't seem to be of a useful substance, so no one
19 could establish a relationship so it was dropped.

20 Q Is benzoapyrene found in tobacco smoke?

21 A I'm not a chemist, per se. I
22 understand some people claim that it has been
23 identified, and it has been identified, as I
24 remember or understand in very minute amounts.

25 Q And those amounts are not dangerous in

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1 your opinion?

2 A I don't know what constitutes a
3 dangerous substance.

4 Q Did American Tobacco Company during
5 your tenure there undertake any experiments to
6 determine the level of benzoapyprene in its
7 cigarettes in-house?

8 A I didn't -- I never looked at the
9 complete analysis of mainstream smoke at any time.
10 You probably know better than I that the tobacco
11 industry has characterized cigarette smoke over,
12 under, sideways and out, and I made no attempt to
13 find out what trace amounts of this or that were
14 present.

15 Q During your tenure there, was there any
16 investigation, to your knowledge, of the health
17 effects of any of these smoke constituents that
18 were identified in tobacco smoke?

19 MR. RILEY: Wait a minute. Any
20 objection anywhere in the world by anyone; is
21 that your question?

22 MR. BAKER: Excuse me?

23 MR. RILEY: Can you repeat the question
24 for me.

25

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1 BY MR. BAKER:

2 Q During your tenure at The American
3 Tobacco Company, was there any effort by American
4 Tobacco scientists to identify or test the health
5 effects of any of the constituents that have been
6 identified in tobacco smoke at that point in time?

7 A Not the health effects, no.

8 Q Dr. Burke, do you know who
9 Dr. Oscar Auerbach is?

10 A I never met the man. I've heard of
11 him. I believe he has training in pathology.

12 Q And do you know of his reputation, his
13 professional reputation?

14 A That was a long time ago. I'm not so
15 sure since I wasn't acquainted with him that I
16 would even bother to remember.

17 Q Are you aware that Dr. Auerbach
18 conducted smoke inhalation studies on dogs in the
19 late 1960s?

20 A Thank you for refreshing my memory.
21 Those were the experiments of tracheal irritation,
22 ciliastasis and things like that. Smoke was
23 forced into the tracheostomy tube on the dog,
24 which bypassed the upper respiratory track, which
25 I wonder about the relevance of. I wouldn't doubt

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1 about the results he observed were valid results
2 given the conditions of the experimentation.

3 Q Do you know what results he did achieve
4 in those dogs?

5 A I don't remember except it had
6 something to do with the irritation and
7 ciliastasis.

8 Q Are you aware that he found emphysema
9 in the dogs?

10 MR. RILEY: Object to the form, no
11 foundation.

12 THE DEPONENT: No, I don't remember --
13 I don't remember that.

14

15 BY MR. BAKER:

16 Q Carcinoma?

17 MR. RILEY: Same objection.

18 THE DEPONENT: I don't remember that.

19 MR. RILEY: If you give me a chance to
20 get my objections in, it will make this lady's
21 job a little bit easier.

22 THE DEPONENT: Thank you.

23

24 BY MR. BAKER:

25 Q Did you attend any lectures by

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1 Mr. Auerbach in which he discussed the results?

2 A No, I have never seen or met the man.

3 Q Dr. Burke, during your tenure, have you
4 ever heard of the company Gallaher Tobacco or
5 Gallaher, Limited? I'm sorry.

6 A Yes.

7 Q And during your tenure at American
8 Tobacco, what relationship did Gallaher Tobacco or
9 Gallaher, Limited have with American Tobacco
10 Company?

11 A The only relationship I knew of first
12 hand was I met a charming Brit by the name of
13 Derik Wilson, I think his name was, of Gallaher.
14 He came to visit the laboratory and visit the
15 Research Department, and I was not long in his
16 presence but was in his presence and had been
17 introduced to him.

18 I think he came to exchange some
19 quality control testing procedures, but I was not
20 privy to those conversations. I don't recall of
21 any health-related issues being discussed with
22 Derik Wilson, certainly not by me.

23 Q Was there any exchange of information
24 between Gallaher, Limited and American Tobacco
25 Company, your Research & Development Department,

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1 regarding smoking and health or smoking and health
2 research?

3 A Not to my knowledge. I'm not denying
4 that some information was exchanged, but I didn't
5 see it and I didn't know about it.

6 Q Have you heard the name Dr. V.D.
7 Tughan, T-U-G-H-A-N?

8 A No, that one doesn't ring a bell.

9 MR. BAKER: If you would mark this as
10 Exhibit 2.

11

12 (Burke Exhibit No. 2 was marked.)

13

14 BY MR. BAKER:

15 Q Dr. Burke, the document that I've just
16 handed you is a copy of an advertisement appearing
17 in The New York Times in 1969. It's entitled, Why
18 we're dropping The New York Times, and it's been
19 published by the American Tobacco Company.

20 If you would take a minute and just
21 read through that, I would appreciate it.

22

23 THE VIDEOGRAPHER: The time is
24 1:56 p.m., and we are now off the record.

25

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1 (Recess.)

2

3 THE VIDEOGRAPHER: The time is
4 1:57 p.m., and we are now back on the record.

5

6 BY MR. BAKER:

7 Q Dr. Burke, do you recall seeing this
8 advertisement when it ran?

9 A No.

10 Q Have you ever seen this advertisement
11 before to the best of your recollection?

12 A NO.

13 Q About the sixth paragraph down, the
14 American Tobacco Company states, "We believe the
15 anticigarette theory is a bum rap." Do you agree
16 with that statement?

17 MR. RILEY: Objection, no foundation.

18 This is a document the witness has never seen
19 before. He's already discussed his personal
20 views with respect to smoking and health.

21 He's also told you what his testimony is and
22 his understanding of what the company position
23 is. Object to going over old ground.

24 Doctor, you can answer his question.

25

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1 BY MR. BAKER:

2 Q Let me rephrase. Earlier this morning
3 you testified that you did not know what the
4 American Tobacco Company position on smoking and
5 health was, is that correct, during your tenure
6 there?

7 A No.

8 Q This was published in 1969; correct?
9 It was; I will tell you that for a fact. That was
10 during your tenure at The American Tobacco
11 Company; correct?

12 A Yes, during the time I was there.

13 Q And here is a statement of The American
14 Tobacco Company, it says, "We believe the
15 anticigarette theory is a bum rap." Do you agree
16 with that statement?

17 MR. RILEY: Objection. He's already
18 testified what his personal beliefs were.

19 Doctor, you can answer his question to
20 the best of your ability.

21 THE DEPONENT: I am not answering his
22 question but to say I've never seen it and
23 didn't have anything to do with it and really
24 don't have a novel opinion about bum rap.

25

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1 BY MR. BAKER:

2 Q Okay.

3 A As it reads -- it doesn't read
4 scientifical; it reads something else.

5 Q The next paragraph reads, "Therefore,
6 we are not going to knuckle under to the Times or
7 anybody else who tries to force us to accept a
8 theory which, in the opinion of men who should
9 know, is half-baked."

10 Before making such a statement, would
11 you believe that a reasonable company would
12 inquire as to whether or not -- inquire of
13 scientists and medical experts whether or not the
14 anticigarette theory was half-baked or a bum rap?

15 MR. RILEY: Object to the form of the
16 question, calls for speculation, there's no
17 foundation.

18 THE DEPONENT: I can't imagine anyone
19 putting this in print without doing their
20 homework.

21

22 BY MR. BAKER:

23 Q But you were not consulted about this?

24 A I wasn't part of the homework.

25 Q To your knowledge, was Mr. Harlow

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1 consulted?

2 A I don't know. I have no way of
3 knowing. He never mentioned it to me.

4 Q To your knowledge, was Dr. Larsen
5 consulted?

6 MR. RILEY: Objection. He doesn't know
7 anything about the document or how it was
8 prepared. He's already told you that.

9 There's no foundation for the questions you're
10 asking him. He's already told you he doesn't
11 know how it was put together.

12 MR. BAKER: You can answer.

13 THE DEPONENT: I don't know whether --
14 was this published in -- where was this
15 published, do you know?

16

17 BY MR. BAKER:

18 Q It was published in The New York Times,
19 I believe, but I could be mistaken about that.

20 A I don't know how closely Paul Larsen
21 tracked The New York Times, but he may have
22 occasionally looked at it. Since this is not a
23 scientific document, but is more of a PR piece,
24 and that's my opinion, I don't know that Paul
25 anything more than would have glanced at it and

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1 spent more time with things that were scientific
2 publications. I wouldn't be surprised whether he
3 saw or didn't see it. I have no basis for judging
4 that.

5 Q Dr. Burke, I'd like to ask you a few
6 questions about Carlton cigarettes.

7 A Yes, they were my cigarette.

8 Q And during what years did you smoke
9 Carlton again?

10 A Oh, '64, '65, something like that when
11 I came back to Richmond and until maybe about a
12 year after I left American in the early '70s, I
13 stopped smoking cigarettes. Carlton was my
14 mainstay during all of that time.

15 Q What characteristics distinguish
16 Carlton from other cigarettes?

17 A Taste.

18 MR. RILEY: Object to form.

19

20 BY MR. BAKER:

21 Q Taste?

22 A Taste.

23 Q Any other characteristics?

24 A Mostly taste. Sort of like I like some
25 chocolates but not all chocolates.

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1 Q Do Carlton cigarettes have lower tar
2 delivery than other cigarettes?

3 A I have not done that myself, but I
4 think that the laboratory -- by "the laboratory,"
5 I'm not sure how it is proper to reference. The
6 government testing laboratory had indicated that,
7 and, I guess, the company had tested the delivery
8 of mainstream smoke of Carltons, comparing it to
9 other and their own brands. I think it was
10 designed as a mild-tasting, tasty cigarette that
11 perhaps responded to that segment of the market
12 that had a, quote, milder or tastier cigarette or
13 had a taste they liked. I liked it.

14 Q During your tenure at American Tobacco,
15 did you ever review any testing of Carlton
16 cigarettes of any sort?

17 A Yeah. I'm not sure, I don't have the
18 numbers in my head, but I vaguely remember that in
19 the process of repeating some older work of rabbit
20 eye edema, rabbit eye irritation, that we compared
21 at the Medical College with Medical College paid
22 staff under general grant, not specific to that
23 project, we hoped to gain at the rabbit eye edema
24 test, and I think we tested Carlton's for
25 irritation. If I remember correctly, we found it

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1 less irritating.

2 Q What does irritating mean?

3 A To the rabbit eye, the rabbit -- I
4 guess we should say the rabbit eyelid. The rabbit
5 eyelid responds to various chemicals. One of the
6 responses is that you get a little fatter and a
7 little more injected, and instead of sitting next
8 to someone who blows smoke in your eyes to tell
9 them to aim it the other way, you aim it at a
10 rabbit's eye where you can measure the irritation.

11 In comparison with at least one other
12 cigarette, I don't remember what it was, Carlton
13 was in that test and caused less edema in the
14 rabbit eye than another brand for a given delivery
15 of puffs, for example.

16 Q And did you view this as important
17 information concerning the quality or
18 characteristics of Carlton?

19 A It was just another bit of information
20 as to whether Carltons was mild or not. It was,
21 whatever it means, less irritating. I have no
22 idea about irritation to human beings; I just know
23 that in the rabbit eye edema test it was less
24 irritating. It gave less reaction in that test
25 system than another brand, and you can call that

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1 irritation if you like.

2 Q What, then, would be the point of
3 conducting the test on a rabbit if it had no
4 application to human beings?

5 A Well, I don't think that you would get
6 many volunteers to subject themselves to cigarette
7 smoke being delivered directly to their eye to see
8 if it irritates the eye.

9 Q To your knowledge, did you see any
10 other research concerning Carlton cigarettes, be
11 it marketing research, any research of any sort?

12 MR. RILEY: You mean that the company
13 conducted or sponsored?

14 MR. BAKER: Yes.

15 THE DEPONENT: I was probably involved
16 in looking at some tests at Woodard -- I think
17 it was Woodard Laboratories. I don't think it
18 was Hazelton. It was a long time ago -- a
19 question about Carltons as to whether in a
20 biological system they are more or less
21 reactive.

22 I don't remember the details of that,
23 but I think that was one of the things that
24 was done at possibly Woodard Laboratory.

25 There was some overlap or transfer of some

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1 contract research that they shared at Hazelton
2 and at Woodard.

3

4 BY MR. BAKER:

5 Q Did you see any marketing research
6 concerning Carlton cigarettes, marketing research
7 either done in-house or outside?

8 A No.

9 Q Are you aware that Carlton was marketed
10 as a low tar, low nicotine cigarette?

11 MR. RILEY: Objection, no foundation.

12

13 BY MR. BAKER:

14 Q Was Carlton marketed as a low tar, low
15 nicotine cigarette?

16 A I didn't pay much attention to it. It
17 may have been, but, again, it may sound stupid,
18 but I didn't pay a lot of attention to marketing
19 activities.

20 Q Did you ever see advertisements stating
21 that Carlton is lowest?

22 A I think in the newspaper or something
23 that was promulgated at one time or another.
24 Lowest, I think was the claim, and something or
25 another tar and nicotine or whatever.

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1 Q Why, if you know, would consumers be
2 interested in low tar, low nicotine cigarettes?

3 MR. RILEY: Objection, no foundation.

4 There's no suggestion that Dr. Burke was
5 marketing cigarettes. There was no suggestion
6 he was involved in advertising cigarettes.
7 You haven't laid a foundation for the
8 question.

9 If you have a basis for answering,
10 Doctor, you can answer.

11 THE DEPONENT: I have no basis of
12 answering except a nonscientific observation,
13 and, that is, it seemed like there was a lot
14 of hullabaloo about tar and nicotine of all
15 brands at that time. The federal government
16 had a testing -- cigarette testing laboratory,
17 I believe, and they were publishing results,
18 not of every brand ever made but the leading
19 brands.

20

21 BY MR. BAKER:

22 Q Is a low tar cigarette safer than a
23 regular cigarette?

24 A I have no basis of knowing that.

25 Q Why would smokers want to get less tar

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1 or nicotine?

2 A I don't know.

3 MR. RILEY: Objection. Let me just
4 object to the last question on the grounds
5 that it was asked before and it was answered
6 before, and there is no foundation for it,
7 just like there wasn't the first time.

8

9 BY MR. BAKER:

10 Q Would it be reasonable, in your
11 opinion, for a smoker of Carlton cigarettes to
12 believe he was getting less tar and nicotine?

13 MR. RILEY: Objection, no foundation,
14 calls for speculation.

15 THE DEPONENT: To the extent that
16 someone would want to believe the published
17 figures from whatever source, I don't know why
18 anyone would want to go that way. But if they
19 had an interest for whatever reason, I guess
20 they would look whatever was being published
21 by way of figures, but why they would want it,
22 I don't know. Maybe there was on the part of
23 the government an implication that there was
24 importance.

25

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1 BY MR. BAKER:

2 Q But a consumer should have been, in
3 your opinion, able to rely on those figures from
4 the government?

5 MR. RILEY: Objection, no foundation,
6 speculation.

7 THE DEPONENT: Whatever the figures
8 meant, I would suppose that people would
9 assume that the United States Government is
10 only associated with good things and not
11 unreliable things, but beyond that, the
12 presumption that what you read is true.

13

14 BY MR. BAKER:

15 Q Dr. Burke, during your tenure at The
16 American Tobacco Company, do you know whether
17 other tobacco companies were planning or
18 undertaking in-house biological research programs?

19 A No.

20 Q Did you hear rumors about other tobacco
21 companies planning or undertaking in-house
22 biological research programs?

23 A Yes.

24 Q What companies were these?

25 A The rumor mill worked in the scientific

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1 community that a number of tobacco companies had
2 hired people with biological backgrounds or
3 biomedical and pharmacological experience in the
4 field of pharmacology.

5 Dr. Larsen would certainly have heard
6 that such-and-such a company had hired
7 such-and-such a pharmacologist who was a graduate
8 student or knew someone, a big grapevine. When we
9 were talking about the -- setting up the
10 laboratory and that it might be used by MCV
11 personnel or ATC personnel, so-called animal
12 quarters at Bermuda Hundred, I forget exactly, but
13 it seems to me that the rumor was that a company
14 had gone so far as to ask the price of animal
15 cages.

16 Q Do you recall what company that was?

17 A I'm not sure, but it may have been
18 Reynolds.

19 Q Do you recall from where you heard that
20 rumor?

21 A No.

22 Q After American Tobacco decided not to
23 conduct an in-house biological research program by
24 American Tobacco Company personnel, what became of
25 those rooms at Bermuda Hundred?

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1 A They were put to pretty good use.
2 There are some -- and I'm speaking in an area that
3 I don't know about, but I understand that there
4 are some things having to do with quality control,
5 some things to do with analysis of the tobacco
6 leaf; that it's highly desirable to have a
7 controlled atmosphere, and these rooms were
8 designed not only to be ultracleanable and clean,
9 but also there were facilities for maintaining the
10 atmospheres in those rooms.

11 I'm wandering off, but there are
12 certain parameters that is desirable if you have
13 experimental materials; that they be kept within a
14 certain range, neither too hot nor too cold, too
15 dry nor too wet, and most of all of the equipment
16 that controls that has a range. And I guess
17 someone in quality control pointed out that these
18 rooms would be great for doing some of that
19 quality control work and so forth.

20 While I was still at the company, these
21 rooms were assigned to the quality control
22 division rather than leave them in idol, or wait,
23 for something to develop with the Medical College.

24 Q Were these rooms ever used for
25 animal --

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1 A No.

2 Q Did the Medical College of Virginia
3 ever use these rooms?

4 A Not to my knowledge.

5 Q When you heard rumors about other
6 tobacco companies planning or undertaking in-house
7 biological research, was this -- did these
8 companies publicize the fact that they were doing
9 it?

10 MR. RILEY: Objection, no foundation.

11 THE DEPONENT: It was very interesting
12 that, from what I understood, that certain
13 people were in certain places, certain
14 companies. I never knew from all certainty
15 that they were doing anything more than I was
16 doing, that is, being an internal consultant;
17 that they were not directly -- I did not know
18 whether they were or were not doing directly
19 work and never had the opportunity nor took
20 the opportunity nor looked for the opportunity
21 to find out what they were doing.

22

23 BY MR. BAKER:

24 Q During your tenure at The American
25 Tobacco Company, did you ever hear of the term the

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1 gentlemen's agreement?

2 A Yes, I heard that.

3 Q And what did that term mean?

4 A I'm not so sure I understood what it
5 meant except in the context that it was said in
6 sort of a slurring way that it was a gentlemen's
7 agreement for somebody to not show up at a meeting
8 or something like that, and that was never hard
9 and fast. I just heard, oh, that must be a
10 gentlemen's agreement, and it was in a derogatory
11 sense not in a salutary sense.

12 Q Did you ever hear of the term used with
13 regard to in-house biological research?

14 A No.

15 Q What was the Industry Technical
16 Committee?

17 A I was not directly involved in that.
18 Some of the people from the chemistry section were
19 involved in the Industry Technical Group. I don't
20 know that I ever attended any meeting that was
21 charged with responsibilities along those lines.

22 I went to New York several times and I
23 went to Washington at least once meeting with
24 people talking about general industry concerns,
25 general manufacturing concerns, and if that was

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1 glorified by the name Industry Technical
2 Committee, I can't remember that it was.

3 Q What were these general industry
4 concerns, specifically?

5 A I don't know that I'm in a position to
6 enunciate them. I think that all of the companies
7 were concerned about the allegations being thrown
8 at them, the allegations of smoking and health in
9 the press, I guess, that companies were not
10 responding, things like that. But that was --
11 that was what I heard in the news reports
12 occasionally or saw in the papers occasionally; it
13 was never anything in writing, black and white,
14 that came under my nose.

15 Q And you said you went to no Industry
16 Technical Committee meetings?

17 A I may have, but I don't know that
18 that's what they were. It's been a long time. I
19 can better remember going to New York, and it was
20 in the middle of winter and a very bad time. I
21 can remember going along in slush and snow better
22 than I can remember, strangely enough, even the
23 substance of why I was there.

24 Q Were you involved in any way in
25 discussions concerning how to address these

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1 allegations of smoking and health that you just
2 mentioned?

3 A Not really, not really.

4 Q What was the CTR?

5 A I think that's the acronym for the
6 Council for Tobacco Research USA, and, as I
7 understood it or if I remember I understood it and
8 stand it, it was an organization that had a board
9 of directors which would oversee granting research
10 projects. These were first-rate, reputable
11 scientists who should be in a position to know
12 that if a particular prospective grantee, whether
13 that person was qualified to do particular
14 research or not.

15 That's in the light of there always has
16 been a large number of people looking for grant
17 support and making grant applications, who, in the
18 final analysis, probably, I'm not very qualified
19 to do what they said they were going to do or in a
20 position to do what they want to do. They are in
21 a position to get and spend the money, but I'm not
22 so sure they are in a position to spend it
23 reasonably.

24 So it has to go through filming, the
25 national candidate -- NCI, National Institutes of

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1 Health have committees that review and grant
2 applications.

3 Q Did you review the annual reports of
4 the CTR to see what type of research was being
5 funded through the CTR?

6 A I can't remember specifically doing
7 that or not doing that. It might have been
8 something that I did. It might have been
9 something that was put under my nose and asked,
10 what do you think, but --

11 Q Are you generally aware of the type of
12 research that was funded through the grants of the
13 CTR?

14 A Not as to specifics. I think generally
15 they were to fund research in the area of smoking
16 and health, but I don't think that was an
17 exclusive mission. I think that some basic
18 research that might not immediately be construed
19 as having implications on smokers or health, but I
20 don't know of that. I did not review any of the
21 grant applications and did not look at any of the
22 resulting work except as I might run across
23 something published that might have a trailer that
24 says, supported in part by grant from Council for
25 Tobacco Research USA.

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1 Q And when you saw this research that
2 might have the trailer, supported by a grant from
3 CTR, did it appear to you that that research was
4 directly relevant to whether or not cigarettes
5 caused disease?

6 MR. RILEY: Object to the form of the
7 question. You need to specify what research
8 you are talking about.

9 MR. BAKER: That he came across.

10 MR. RILEY: Excuse me. There's no
11 indication at all of what that research even
12 is other than the implication of a paper that
13 came across his desk. I object to the
14 question. There's no foundation for it. I
15 don't see how the witness can answer it.

16 Go ahead, Doctor.

17 THE DEPONENT: Ask me again.

18

19 BY MR. BAKER:

20 Q A moment ago you said that from time to
21 time you would see research come across your desk
22 that would have the trailer sponsored by a grant
23 from the CTR. To your recollection, judging from
24 the papers that you saw, was this research
25 directly relevant to whether or not cigarettes

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1 caused disease?

2 MR. RILEY: Same objection. You
3 haven't identified at all any of the research
4 that you're talking about specifically.

5 THE DEPONENT: Specifically, I noticed
6 that I didn't give it any particular weight or
7 regard. The title or the abstract of the
8 paper would catch my eye, and if I were
9 interested, I would pursue it. I had no way
10 of knowing in the universe of what was
11 published by these public people or what was
12 sponsored -- what was supported by CTR as to
13 what relevance there would be.

14 Again, if the literature, pro and con,
15 were not so voluminous and controversial, it
16 might be easy to keep track of it and have a
17 mental note of what came where from what and
18 why, but I don't think even Paul Larsen could
19 keep track of all that.

20

21 BY MR. BAKER:

22 Q Why do you say that the literature was
23 controversial?

24 A Not every article that I ever saw
25 agreed with every other article that I ever saw.

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1 Q So, in your opinion, there was a
2 controversy of whether or not smoking caused
3 disease?

4 A In my opinion at that time the
5 prevalent scientific thought was that cigarette
6 smoking may have health implications, but I don't
7 think everybody believed it, everybody ascribed to
8 that point of view at that point in time.

9 Q Are you familiar with an organization
10 called Three I, or III?

11 A I can't fetch up anything on that. If
12 you will --

13 Q I'll move on to the next topic.

14 Are you familiar with something called
15 special projects?

16 A Special projects in what context? How
17 would I --

18 Q CTR special projects.

19 A Again, I'm admitting my ignorance now.
20 I might not have been so ignorant then, but,
21 special projects, I heard the phrase, but I'm not
22 so sure I can relate to what that phrase was
23 intended to convey, and I've certainly forgotten
24 it now. I don't know what you mean.

25 Q Have you heard the phrase special

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1 accounts?

2 A No, I don't know about that.

3 Q What does the phrase biological
4 activity mean, if anything, to you?

5 MR. RILEY: Objection to the form.

6 THE DEPONENT: It means a lot of
7 things, I guess. I would suppose one
8 construct would be biological activity means
9 an organism demonstrates as a living being a
10 response to some stimulus either in its
11 habitat or in a laboratory or a cage or --
12 it's a catch-all phrase that does not have, to
13 me, a definable specific.

14 Can I give a general answer to that and
15 take up some time?

16

17 BY MR. BAKER:

18 Q Let me move along.

19 Does cancer constitute biological
20 activity?

21 MR. RILEY: Object to the form of the
22 question.

23 THE DEPONENT: Well, I'm glad you asked
24 me that question because what I was going to
25 pontificate about is the word "cancer" means

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1 something to a great many people.

2 To the splitter of meanings, the
3 purists, there are at least several hundred
4 disease entities that are understood in the
5 concept of cancer for human beings. So when
6 one says -- uses the word "cancer," I
7 immediately begin to rattle back and go, which
8 cancer, which organ, which system, which
9 people kind of thing, so that goes back to a
10 biological activity thing, what biological
11 animal or system and what kind of activity.

12 Feeding or a feeding frenzy, let's say,
13 in sharks is a biological activity in the
14 generic sense.

15 MR. BAKER: Let's take a break.

16 THE VIDEOGRAPHER: The time is
17 2:28 p.m., and we are now off the record.

18

19 (Recess.)

20

21 THE VIDEOGRAPHER: This is tape
22 number 3, deposition of Dr. Arthur W. Burke,
23 Jr. The time is 2:35 p.m., and we are now
24 back on the record.

25

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1 BY MR. BAKER:

2 Q Dr. Burke, what is the Ames test?

3 A Spell it for me, please.

4 Q A-M-E-S.

5 A I have no recollection. The only Ames
6 I know is Oaks Ames who was a famous orchidologist
7 at Harvard. Sorry.

8 Q I believe I asked this question this
9 morning; I'm not sure I got an answer.

10 What is the difference between an acute
11 and a chronic animal study?

12 MR. RILEY: Asked and answered.

13 THE DEPONENT: Well, in general, acute
14 applies, like in a so-called acute illness, to
15 something that comes on and goes away within a
16 brief period of time, and chronic is something
17 that hangs on for a long time. Those two
18 adjectives are applied to effects besides
19 acute and chronic diseases or illnesses. You
20 think of the term in medicine as acute,
21 subacute or chronic has reference to, well,
22 real short or maybe not so short and maybe a
23 very long time.

24 So acute and chronic studies imply that
25 the study is study of quick effects, and the

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1 other is for long-term effects. In general,
2 acute effects are studied in a short time, so
3 you may repeat them and do them over and over
4 and over and go on forever studying them.
5 Chronic effects are of longer time.

6 Does that satisfy acute and chronic
7 explanation?

8

9 BY MR. BAKER:

10 Q I think it does. I'm doing sort of
11 clean-up here, so excuse me if I jump from point
12 to point.

13 A Excuse me. In terms of clean-up, I'm
14 not ashamed in recent years, I have developed some
15 intention tremor. It's not that I'm nervous, and
16 I can only excuse as an old man that I reach for a
17 cup of coffee with both paws instead of like so.
18 I don't feel nervous, but that damn intention
19 tremor.

20 Q When you smoked Carlton cigarettes, did
21 you smoke the box or the soft pack?

22 A I may have smoked both, but in
23 recollection, I think I found a soft pack to be a
24 little easier on the shirt pocket. I usually
25 carried it in my shirt pocket. A box has square

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1 corners whereas a soft pack is a soft pack and
2 it's more comfortable. I didn't select it on the
3 basis of anything more than the physical
4 presentation of the box.

5 Q To your knowledge, was there any
6 difference between a soft pack and a hard box?

7 A I never knew of it, and I never sensed
8 a difference except the box was square and felt
9 different to the body than a soft pack or in the
10 hand, as a matter of fact.

11 Q What does the phrase tar and nicotine
12 content mean to you?

13 A I guess someone is claiming that they
14 have determined that a particular, let's say,
15 cigarette delivers under certain circumstances a
16 certain amount of measurable precipitate, what is
17 condensed in some way.

18 Q What does, then, tar and nicotine yield
19 mean to you?

20 A Those words mean absolutely nothing to
21 me unless I extrapolate them to infer that a
22 particular cigarette gives a certain amount of tar
23 and nicotine. There, the inference is to the
24 smoker, and that's not correct; it's to the
25 smoking machine.

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1 I guess there was a general a/k/a
2 gentlemen's agreement that everybody would use the
3 same designed machine, so at least whatever was
4 done could be compared with whatever else anybody
5 did.

6 So tar and nicotine yield would be the
7 amount of condensable particulate and the amount
8 of nicotine as could be measured from a cigarette
9 as measured in whatever was regarded as the
10 standard way or the usual, customary way.

11 Q And, finally, tar and nicotine
12 delivery, does that phrase have any particular
13 meaning to you?

14 A I don't know. Delivery and yield, I
15 guess, are all the same. It's like assay and
16 test. I guess you can make a difference, but I
17 don't see much.

18 Q Have you ever heard of a campaign
19 entitled Thought Leaders?

20 A No, no.

21 Q Do you know Dr. Thomas Osdene?

22 A Yes, I have met Tom Osdene, been in his
23 presence a couple of times, and I believe he's
24 affiliated with the Philip Morris Tobacco Company.

25 Q In what context were these meetings?

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1 A For one, I think we collided at the
2 Federation meetings, and I can't remember whether
3 he was looking like I was looking to see if there
4 was someone that would be suitable to come to the
5 program or not. My association with Tom Osdene, I
6 think, was casual, not necessarily professional
7 except I guess he knew who I was and I knew who he
8 was. I think I knew who he was, and that was it.

9 Q And what was the Federation that you
10 referred to a moment ago; that's up at the Chicago
11 meeting?

12 A That's a Chicago meeting, always used
13 to meet at the McCormick Center, and it's the
14 Federated -- FASEB, Society of Experimental
15 Biology & Medicine. Federated Society
16 something -- I don't know how the A got into it.
17 FASEB was the whole acronym. But the people
18 didn't bother -- we didn't -- most of us who went
19 just called it the Fed meetings, Federation
20 meetings as opposed to --

21 Q Did you ever talk about tobacco company
22 research with Dr. Osdene?

23 A No.

24 Q Do you know Dr. Wakeham?

25 A Yes, I had a pleasant dinner with Wake

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1 a month ago, he's now retired, wonderful
2 gentleman.

3 Q Do you know him well?

4 A Not well but he calls me Arthur and I
5 call him Wake.

6 Q Have you ever discussed tobacco company
7 research with him?

8 A Two occasions ago that I had dinner
9 every with him in Cedarville he mentioned that he
10 had been deposed in a proceedings. He mentioned
11 that the subject of addiction came up and his
12 difficulty in dealing with the concept of
13 addition, and I shared his concerns as a scientist
14 having absolutely nothing to do with Philip
15 Morris, American, but having to do with the
16 subject of addition.

17 Q Do you have a view on addiction? Are
18 cigarettes addictive or is nicotine addictive?

19 A No.

20 Q Just for clarity, who is Dr. Wakeham or
21 what did he do before retirement?

22 A I first met Helmut Wakeham when he was
23 the director of, I guess, R & D for Philip Morris,
24 and I subsequently had a conversation with him in
25 terms of some charity work. I had an occasion to

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1 talk to Wake before I could call him Wake, called
2 him Dr. Wakeham, that I and some others were
3 nominating him to be a fellow in the Virginia
4 Academy of Science, and that was in view of his
5 scientific career and his charity to charitable
6 organizations and to the Virginia Academy of
7 Science and his interest in science education.

8 And I would say my relationship with
9 Helmut Wakeham has been, in the vast majority, a
10 social thing. I find him to be a gentleman and
11 charming dinner companion provided there is some
12 ladies around, and that was about it.

13 Q During your tenure at the American
14 Tobacco Company, did you have contact with other
15 researchers at other tobacco companies?

16 A I may have been in their presence, but
17 I wouldn't regard that as contact.

18 Q Did you discuss tobacco company
19 research with them?

20 A No, nor they with me.

21 MR. BAKER: Thank you, Dr. Burke. I
22 don't have any more questions. I do reserve
23 the right to redirect in the event you have
24 some questions.

25 MR. RILEY: Let me just say give me a

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1 minute, and I'll tell you whether I got any
2 questions.

3

4 THE VIDEOGRAPHER: The time is now 2:46
5 p.m., and we are off the record.

6

7 (Recess.)

8

9 THE VIDEOGRAPHER: The time is
10 2:50 p.m., and we are now back on the record.

11

12

13 CROSS-EXAMINATION

14 BY MR. RILEY:

15 Q Dr. Burke, my name is Tom Riley, and I
16 represent Brown & Williamson Tobacco Corporation,
17 and I have just a handful of questions for you.

18 When you were on the faculty at MCV and
19 at the time you were consulting for the American
20 Tobacco Company, did you have the opportunity to
21 learn about the historical relationship between
22 American Tobacco and the Medical College of
23 Virginia?

24 A I availed myself. I looked at the
25 possibility as part of the possible relationship

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1 with American Tobacco. I looked at their track
2 record, and I'm sure they looked at my track
3 record. I had occasion to review and ask for the
4 files on that and looked at it.

5 Q And in the course of doing that, did
6 you learn that American Tobacco Company had
7 sponsored research at the Medical College of
8 Virginia for many years prior to your arrival
9 there?

10 A Starting in the mid-'30s, I think in
11 that time frame significant grants were given to
12 the Medical College and that continued up until
13 the time I came in contact with the Medical
14 College and American Tobacco.

15 Q In other words -- and this was research
16 for biomedical purposes; is that correct?

17 A In some cases you could say biomedical
18 and in some cases answering a simple question
19 posed.

20 One of those questions, if I may
21 elaborate, was, in the 1930s there was a question
22 of whether nicotine was destroyed when a cigarette
23 was smoked and that smokers couldn't get nicotine,
24 and there was lay consideration that nicotine was
25 an insecticide. Nicotine is a good insecticide.

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1 So the question is of smokers getting
2 an insecticide or something that's toxic that
3 kills things. The question was, is there nicotine
4 in smoke, and that question was answered at the
5 Medical College.

6 Q And did The American Tobacco Company
7 contribute to the development of the scientific
8 answer to that question?

9 A Uh-huh.

10 Q That's a yes?

11 A Yes.

12 Q And if I understand you correctly,
13 then, American Tobacco Company had sponsored
14 biomedical research at the Medical College of
15 Virginia for many years prior to your arrival; is
16 that fair to say?

17 A At least 30 years prior to my arrival.

18 Q And they sponsored biomedical research
19 during the time that you worked at The American
20 Tobacco Company as an employee of the company?

21 A Yes.

22 Q And, to your knowledge, did they
23 continue to fund biomedical research at the
24 Medical College of Virginia after you left
25 American Tobacco Company?

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1 A Yes.

2 Q Doctor, do you believe that the
3 research that The American Tobacco Company
4 sponsored at the Medical College of Virginia was
5 important science?

6 A Yes. First question about, is nicotine
7 transferred in smoke, I think, is a pretty
8 important question. Other questions were asked
9 about nicotine, about nicotine metabolism, and
10 Dr. Herbert McKennis carved out a significant
11 portion of his career pursuing nicotine and
12 nicotine metabolism.

13 Q Was that research also important
14 scientifically?

15 A Yes. I'm not fully aware of all the
16 implications, but some of the work that McKennis
17 published using radiolabel nicotine that -- to
18 where the radiolabel or nicotine or nicotine
19 metabolites went in whole animal, that work was
20 done in collaboration with somebody -- I think it
21 was scandinavian, probably in Sweden, I'm not sure
22 of that, but that was cited as very significant
23 work contributing to the field of radiotracer
24 work, not just nicotine, not just tobacco.

25 Q And that research was published in the

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1 scientific literature?

2 A Yes.

3 Q And did you, yourself, conduct
4 biomedical research under grant from The American
5 Tobacco Company at the Medical College of
6 Virginia?

7 A In the sense that the uptake and
8 elimination of carbon monoxide is biomedical.
9 Using cigarettes as a source and a tank of CO as a
10 source, we studied the uptake and elimination of
11 carbon monoxide from smokers and nonsmokers from
12 these two sources. If that is biomedical, then we
13 did that, indeed, and we did, as I mentioned, the
14 rabbit eye edema studies that I can remember.

15 Q And did you report your findings in --
16 to the scientific community also?

17 A The carbon monoxide study was published
18 as an abstract, and I would say with some
19 immodesty, there was praise for the quality of the
20 work or the procedure of the work of the uptake
21 and elimination of carbon monoxide. The graphs
22 and the details that we did were given in the
23 paper to the Society of Toxicology. I don't
24 remember when it was, but it was after the work as
25 done and before I left American which was

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1 somewhere in the mid-'60s.

2 Q In the research that American Tobacco
3 Company funded and sponsored at the Medical
4 College, was, from what you know of it and in your
5 opinion, high quality and reputable science?

6 A Well, from my own part of what I did, I
7 would have to be conceited to say it was probably
8 high quality, and I would not in any way question
9 the work of McKennis. He was a forerunner in the
10 field, and Hague and Larsen did parallel work.
11 When you say biomedical, I guess you would have to
12 consider Paul Larsen's monumental work with Hague
13 who contributed name and not much of hard work to
14 the Hague and Larsen book compendium the
15 biomedical literature on smoking. That was high
16 quality and published in first-rate form.

17 Q And, Doctor, do you believe it was a
18 reasonable approach for The American Tobacco
19 Company to pursue this sort of research by funding
20 it on the outside of the company?

21 A In the sense --

22 MR. BAKER: Objection, asked and
23 answered.

24 THE DEPONENT: What was your objection?

25 MR. BAKER: I objected as asked and

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1 answered.

2 THE DEPONENT: Asked and what?

3 MR. BAKER: I asked it; you answered it
4 already.

5 THE DEPONENT: Oh, okay. Same answer
6 as before.

7

8 BY MR. RILEY:

9 Q Well, Doctor, I just want to make sure
10 I understand your testimony, Doctor. You agree it
11 was a reasonable thing for the company to do to
12 fund that research on the outside?

13 A Well, to elaborate, as I always want to
14 do, to begin with, in the 1930s, the research
15 laboratory was probably 30 or 40 people, and to my
16 knowledge, none of them had biological background
17 or experience. It made no sense to try to do
18 something that you weren't trained to do when
19 there was a very first-rate institution in the
20 same town, as a matter of fact, same vicinity. So
21 sponsoring that work at the Medical College in the
22 Department of Biochemistry and Pharmacology and
23 then later Pharmacology made a whole lot of sense.

24 MR. RILEY: Thank you, Doctor, I don't
25 have any more questions.

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1 REDIRECT EXAMINATION

2 BY MR. BAKER:

3 Q I just have one or two. Fred Baker
4 again.5 Did The American Tobacco Company
6 sponsor biomedical research at MCV either through
7 grant or through contract into determining the
8 effect of whether cigarettes cause disease?

9 A Not to my knowledge.

10 Q In your opinion, did American Tobacco
11 Company do everything it could to determine
12 whether or not cigarettes cause disease?13 MR. RILEY: Objection, calls for
14 speculation.15 THE DEPONENT: I think American was, in
16 the time frame, remarkable in what it was --
17 as questions arose like, is there nicotine, is
18 there nicotine? The answer, results, yes,
19 there's nicotine in mainstream smoke. Is
20 carbon monoxide, besides is it there, do
21 people take it up and do they eliminate it and
22 is there any interaction? The answer is, they
23 take it up and it's held on pretty tight for a
24 while, you eliminate it, and that's
25 irrespective of the source kind of thing. But

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1 those are reasonable, isolated avenues.

2 I could not perceive of any company
3 going out and answering everything it wants or
4 addressing all questions at once, and I think
5 that American is quite reasonable in its
6 approach of funding research.

7

8 BY MR. BAKER:

9 Q But did it fund research into whether
10 or not cigarettes cause disease, to your
11 knowledge, during your tenure there?

12 A No, I don't interpret it that way. The
13 research was to answer specific questions where it
14 was possible to answer specific questions. If the
15 question was posed, for example, I keep saying
16 nicotine and that was a yes or no answer which was
17 it was there.

18 MR. BAKER: Thank you. No other
19 questions.

20 MR. RILEY: Thank you, Doctor. I don't
21 have anything else.

22 THE DEPONENT: Am I through?

23 MR. RILEY: You're through.

24 THE VIDEOGRAPHER: The time is
25 3:01 p.m., and this deposition is concluded.

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2 And further this deponent saith not.

3 (Reading and signature reserved.)

4

5 (The deposition concluded at 3:01 p.m.)

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1 CHANGES REQUESTED TO THE DEPOSITION OF
2 ARTHUR W. BURKE, JR., M.D.
3 TAKEN ON APRIL 14, 2000

4

5 Page/Line From To Reason

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24 Date Signed Arthur W. Burke, Jr., M.D.

25 REPORTED BY: LORI A. BOEDING

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I hereby certify that I have read and
subscribe to the foregoing deposition.

3

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5

6 Arthur W. Burke, Jr., M.D.

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10

11 COMMONWEALTH OF VIRGINIA AT LARGE, to wit:

12

13 Subscribed and sworn before me this

14 day or

2000 .

15

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Notary Public:

20

My Commission expires:

21

22

23

24

23

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1 COMMONWEALTH OF VIRGINIA AT LARGE, to wit:

2 I, Lori A. Boeding, Notary Public in and for
3 the Commonwealth of Virginia at large, and whose
4 commission expires August 31, 2000, do certify
5 that the aforementioned appeared before me, was
6 sworn by me, and was thereupon examined by
7 counsel; and that the foregoing is a true,
8 correct, and full transcript of the testimony
9 adduced.

10 I further certify that I am neither related
11 to nor associated with any counsel or party to
12 this proceeding, nor otherwise interested in the
13 event thereof.

14 Given under my hand and notarial seal at
15 Richmond, Virginia, this 15th day of May 2000.

16

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19 Lori A. Boeding - Notary Public
Commonwealth of Virginia at Large

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Page 177

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15 Richmond, Virginia, this 15th day of May 2000.

16

17

Lori A. Boeding

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Lori A. Boeding - Notary Public
Commonwealth of Virginia at Large

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